COAL AGE

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Worker Against Worker

By R. Dawson Hall

WELCOME indeed are all tendencies toward solidarity and brotherhood in the labor unions, in the trades and between nations. Yet it must be remembered that there is a natural antagonism which arises out of the fact that whatever one man gets, another has to do without. Out of the fund of things produced every producer must look for a reward for his labors. If one worker takes two awards, others must go short; for making more coupons will not add to the booty to be divided.

When, therefore, a labor union decides it wants an increase in wages, it must expect that increase to come out of the wages of other workingmen. The union does not help labor as a whole by making its demand. It is merely taking from other workingmen a higher rate of compensation than its services have hitherto commanded. It is raising the price of the labor of its members at the expense of everyone who buys what is produced by that labor.

Solidarity is shown, therefore, not by large demands, but by a just appraisement of the worth of one's labor. If one class of workmen with an increase in cost of living of about 50 per cent. asks for a 200 per cent. increase in wages, it is trying to profiteer from other workingmen to the extent of 150 per cent. If the increase comes to an individual by the ordinary process of competition, he may be well justified in taking it, believing that he would not get it if he were not entitled thereto; but if it comes as the result of combination and violence, he is taking an unfair advantage of other workers.

On April 1, 1914, the Indiana "bituminous" inside day laborers received $2.84 per day of eight hours. The outside day laborers received $2.24. Under the terms of the Washington Agreement, November 1, 1917, these day laborers were awarded $5 and $4.35 per day of eight hours respectively, an increase of about 76 per cent. to the inside men and 94 per cent. to the outside men above the scale of 1914.

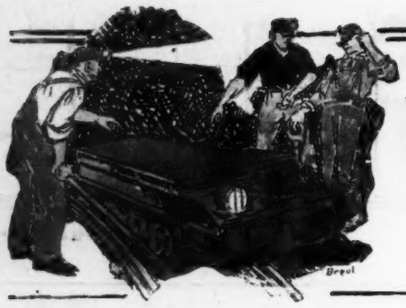
Recently these Indiana mine workers met and demanded a $7 per day minimum with a six-hour day. This would be an increase in wage to the inside day laborer of 40 per cent. and to the outside day laborer of 61 per cent. per day on the wage of November 1, 1917, and increases of 146 and 212 per cent. respectively on the daily wage of April 1, 1914

Taking, however, into consideration the shorter working day of six hours demanded at the same time, the two classes of wage earners are found to be seeking an increase per hour of 87 and 115 per cent. respectively over the rate paid at the present writing, or an advance per hour of 229 and 317 per cent. respectively over the rate paid in 1914.

Clearly, the Indiana mine workers are not trying merely to meet the increased cost of living. They are seeking rather to get more of the other fellow's hours than they are willing to give him. They are endeavoring, in short, to profiteer in the sale of their labor. They cannot protest against the cost of living for they, themselves, have done more than any other persons to cause that increase

In fact, the figures given above are not really representative of the probable increase in cost of coal, for the mine worker has kept down his rent charges to a pre-war level and has provided that the increase in the cost of his coal shall be less than the increase in the cost to the operator. He is also trying to provide for time-and-a-half for overtime and double-time for Sunday work, and to prevent production on Saturday afternoon and for two hours each day. All these extra charges and novel restrictions in the use of the plant will add to the cost of the coal, and this cost the consumer must inevitably pay.

No one can say that this grasping for larger pay shows a sense of obligation to the interests of labor. It is a felonious attempt to hold up the workingman by a threat that if he does not come across with the goods he will be compelled to be idle till he is less obdurate. Perhaps the union men do not view their action in that way, but however excellent their intentions the result is the same.



IDEAS AND SUGGESTIONS

PRACTICAL SCHEMES THAT MAKE THE DAY'S WORK EASIER

Device for Dumping Rock Cars at the Rock Bank

BY RALPH W. MAYER
California, Penn.

Various methods are employed at coal plants for dumping the cars of rock and slate resulting from mining operations and coal preparation. When schemes are used for dumping cars which necessitate frequent extension of track the labor item tends to increase the cost of refuse disposal unduly. It was to simplify matters in this respect that the device here described was planned.

To facilitate the dumping of refuse, the car containing it is run up on a portable frame or truck, one end of which overhangs the rock bank and thus readily permits the dumping of the car. This equipment can be made at any mine and its construction is as follows: The main frame of the dump is made of 10- by 10-in. timbers which carry the cross ties and track. This frame is supported on two 4-wheeled trucks; one truck is about at the middle of the frame and the other is near the end where the car is started up on the frame. Ordinary car wheels are used for the trucks.

The wheel base of the front truck is about six feet. The truck is made of 10- by 10-in. timbers tied together and braced by iron rods. On top of this frame, carrying the axle journals, are two pairs of 10- by 10-in. cross timbers supporting a platform of 4-in. plank. One foot from each end of this platform is bolted a 1- by 6-in. iron plate, the ends of which are bent down over the 10- by 10-in. timbers. These iron plates furnish a sliding surface for a similar reversed platform bolted to the under side of the main timbers carrying the track of the dumping contrivance. A king-pin pivots the truck to the main frame and allows the dumping equipment to round curves on the track laid on the rock bank.

The wheel base of the rear truck is as short as practicable. This truck supports the lower end of the dumping equipment near the end touching the track on the rock bank. The axles of this truck run in journals bolted to angle-irons to which are bolted other angles carrying a 10- by 10-in. timber; this top timber forms the bolster of the rear truck and carries the load. A king-bolt pivots this truck to the main frame.

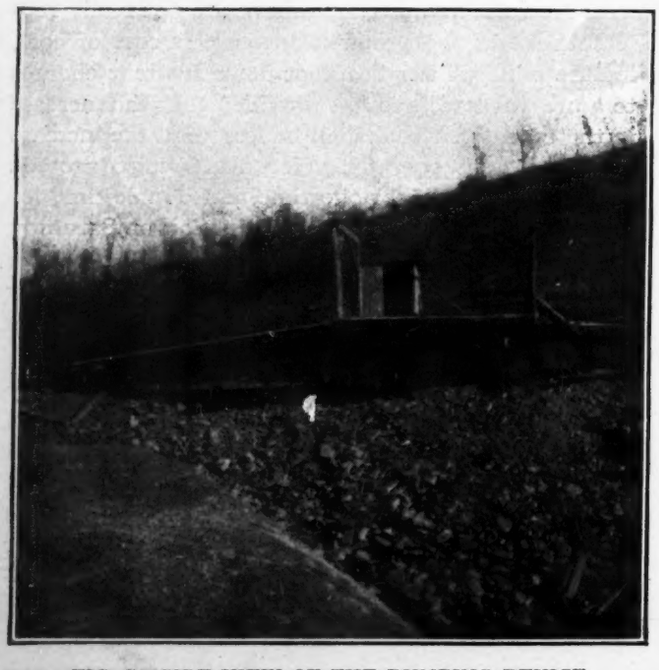


FIG. 1. SIDE VIEW OF THE DUMPING DEVICE

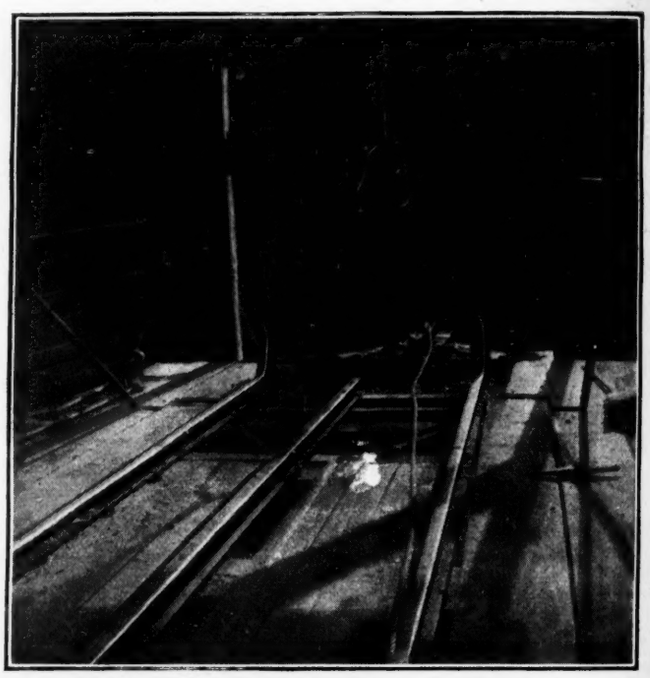


FIG. 2. VIEW OF DUMP, SHOWING KICKBACK

The dumping device is about 60 ft. long over all. The rear end has 30-ft. track stringers which are carried by the two trucks; the rear end of these stringers just clears the rails of the rock-bank track. Ten- by 10-in. cross timbers are bolted to the under side of these stringers to act as bolsters to rest on the truck bolsters. Fig. 1 shows these inclined stringers rising from the rock bank track to a point over the truck near the center of the dumping device; the track on the dump is carried forward by horizontal stringers, the forward ends of which are supported by 1½-in. iron rods as clearly shown in Fig. 1. These rods are fastened to cross timbers under the track stringers and pass over a frame about the middle of the dumping device.

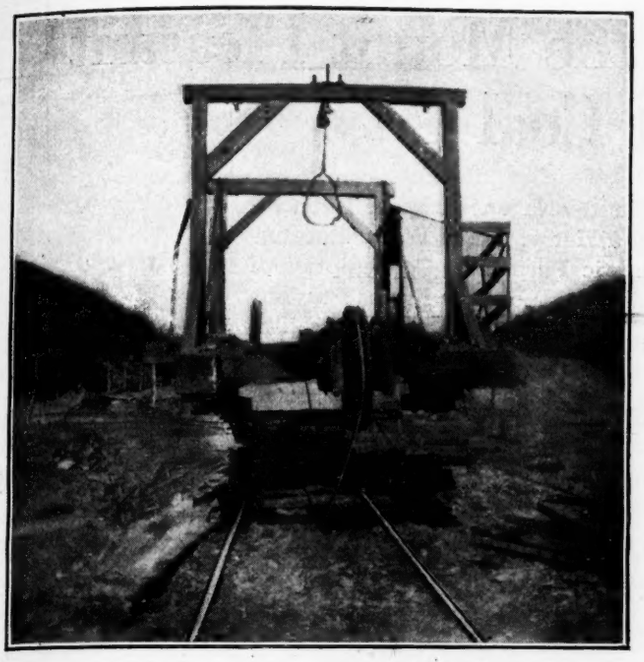


FIG. 3. VIEW FROM THE FRONT, SHOWING SHEAVE

To facilitate the movement of the rock-car onto the dumping device, the rails at the bottom of the incline are beveled at their ends which are so flattened out and the sides bent down as to form a channel fitting over the rock bank track thus holding them in position. A clevice bolted through this movable rail and under the rail of the rock bank track also helps to hold the dump rails in position.

An ordinary kickback dump is placed at the forward end of the track as is clearly shown in Fig. 2. A frame is erected over the track at the horns of the dump, from which a ring is hung to engage the hook on the end of the car door. This ring raises the car door when the car is tilted.

Arrangement is made to pull the rock car upon the dump by a cable. A motor and drum are attached to the under side of the track stringers near the rear truck as shown in Fig. 1. The cable passes forward under the track out to a sheave supported by timbers extending out from the track timbers as shown in Figs. 1 and 3. From the sheave the cable passes back between the track rails, supported on rollers. A small shed made of corrugated iron houses the controller and resistances of the motor and protects the man who runs the hoist in stormy weather.

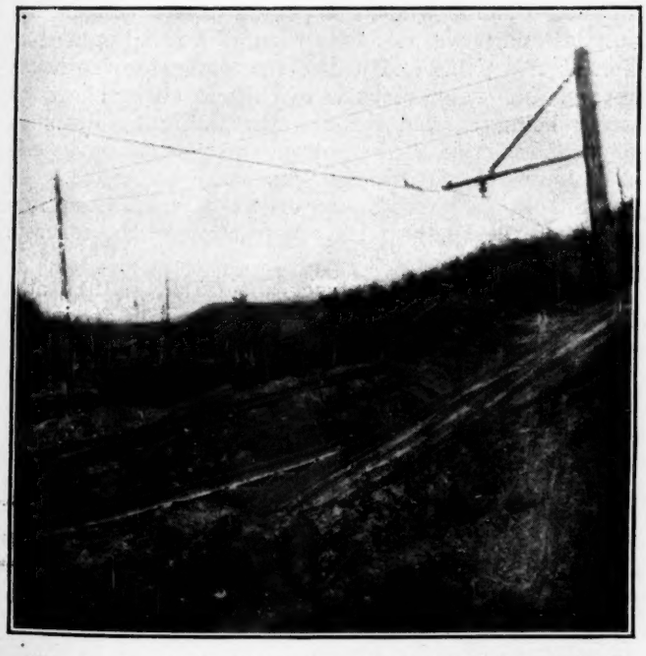


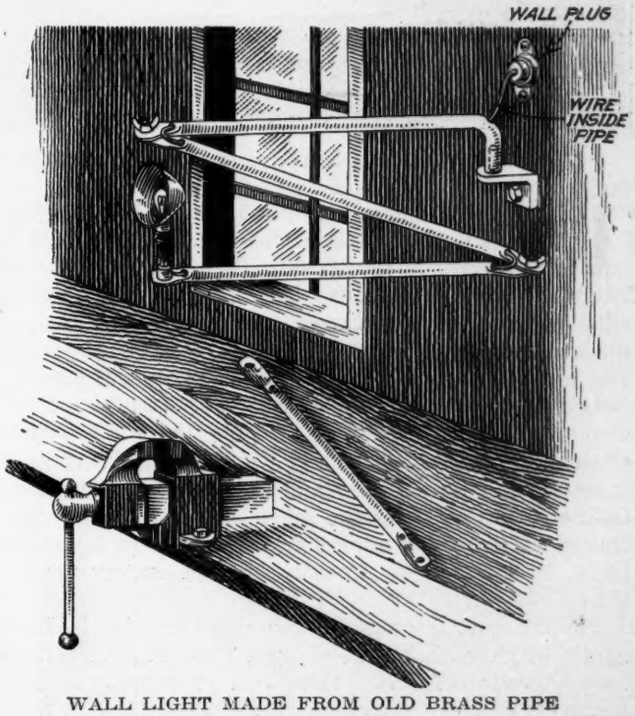
FIG. 4. GENERAL VIEW OF DUMP AND ROCK BANK

In operation the rock is dumped from this device until the bank is extended and filled up level with the bank track sufficient to permit of another section of track being laid. The dumping device is then moved forward and the process is repeated as often as the rock gets up to the level of the bank track. The motor and cable on the dump are also used to pull it forward when a move is made.

Handy Extension Wall Light

BY CHARLES H. WILLEY
Concord, N. H.

A handy even though somewhat inartistic wall-light fixture may be made from short lengths of old brass pipe as shown in the accompanying illustration. The first section has one end bent for a short distance at right angles. The other end is flattened, as are also the ends of the next section. These ends, after being



WALL LIGHT MADE FROM OLD BRASS PIPE

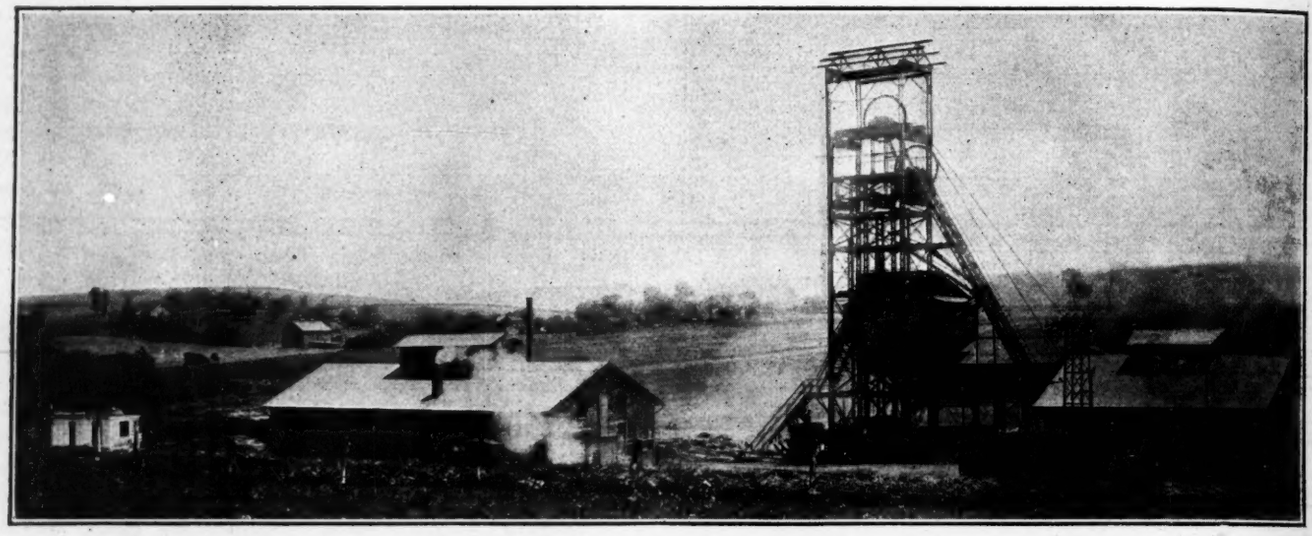
flattened, were drilled for bolts. Holes were drilled so that the light cord could be drawn through the pipe. The angle bracket on the wall is provided with a round pin or stud over which the bent end of the pipe is slipped. The light socket is fitted to the end of the pipe in such a way that it can be revolved at any angle.

A NEW USE has been discovered for gas masks. Word comes from Indiana that these masks are in demand for threshing and shipping wheat infected with Australian take-all. All grain is so saturated with formahdehyde that the workers cannot stand the fumes.

St. Vincent Mine of the Mount Pleasant Byproduct Coal Co.

An Electrically Operated Mining Plant, with an Ultimate Capacity of 1500 Tons a Day, Was Sunk in a Hurry. The Water Encountered in the Shaft Is Used for Domestic Purposes. Consumption of Current Is So Regulated as to Avoid Peak Loads as Far as Possible.

BY P. B. RULE
Greensburg, Penn.



GENERAL VIEW OF THE SURFACE PLANT AT THE ST. VINCENT MINE

THE St. Vincent mine of the Mount Pleasant Byproduct Coal Co. is situated about 7 miles east of Greensburg, Westmoreland County, Pennsylvania. The coal produced is mined from the famous Connellsville basin of the Pittsburgh seam and is adapted, as the firm name implies, to byproduct oven consumption. The coal acreage was bought from the Benedictine Society fathers, who conduct a college and seminary. On account of the necessity of erecting the surface plant of the mine in close proximity to their school buildings, it was stipulated by the fathers that steam would not be used for operating the mine. Electric power, purchased (from the West Penn Power Co.) on a demand basis, is and will be the only kind of energy used in the operation.

The contract for sinking the shaft was let to H. F. Stark, of Greensburg, Penn., and on June 12, 1917, the first shovelful of dirt was moved. The main and air shafts are of concrete construction, elliptical in form. About 30 ft. of lining was put in place at one time; 8 in. to 10 in. of sand was spread around the sides of the excavation, and upon this foundation the forms were built. These were made in six parts, two for each side and one for each end. Space was left between the side forms for a key made of 1¾ x 4-in. yellow pine and the same length as the form. After the concrete had set about 36 hours these keys were taken out, which allowed the forms to be removed. Each form before it was put in place was given a coat of tar on its outside surface so that the concrete would not stick.

A comparatively small quantity of water was encountered in the sinking of the main shaft. Wherever this occurred, corrugated sheet iron was placed in position so as to bring the water to one point, and a wrought-iron pipe was so placed as to conduct the water through the concrete lining so as to relieve any pressure upon its outer face. At a point about 60 ft. down in the air shaft a sump was driven into one end wall, in order to collect a flow of water of about 50 gal. per minute. Upon analysis, this proved to be free from impurities and it was decided to install a small pump station at this point and utilize the water for the house supply. No water rings were built in either shaft, all water being carried through the lining by drainage pipes and carried to the bottom through one large column to which all drainage pipes are connected. All buntons in each shaft are of white oak, fitted into notches made by the form construction in the concrete lining.

Coal, 7 ft. 9 in., was struck about Dec. 1, 1917, at a depth of 240 ft. in the air shaft and 250 ft. in the main shaft. This was considered to be quite fair time, considering the scarcity of labor and the trouble experienced in getting in supplies. A sump, concrete lined and floored, was sunk below the coal in the main shaft. A concrete arch 12 ft. wide, 10 ft. high and 20 ft. long for the main airway and two smaller ones 8 ft. wide, 7 ft. high and 12 ft. long were constructed at the bottom of the air shaft. At the bottom of the main shaft, concrete arches 13 ft. high, 18 ft. wide and 30 ft. long were constructed on both the loaded and empty track sides. The arch on the loaded side will probably be extended when the necessity arises.

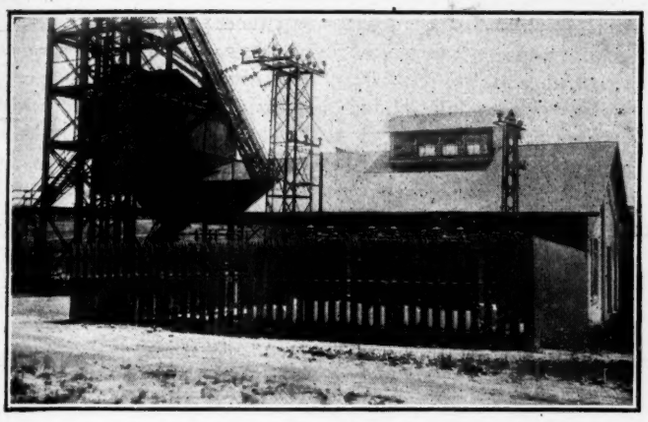
One Harris 7 x 10-in. triplex pump of 250-gal.-per-

minute capacity, driven by a 20-hp. alternating-current motor handles all the water at the present time. Further permanent installations will probably be centrifugal, discharging through a borehole to the surface. Animal haulage is used at the present time, with electric in view. The system of mining will be the modified concentration with 100-ft. blocks. This system has been used with great success by the affiliated companies of the Mount Pleasant Byproduct Coal Company.

Fifteen acres of surface area were leased from the Benedictine Society for the surface plant. The siding is 2800 ft. long, 1400 ft. of single track above the center line of the main shaft and 1000 ft. of double track below this point. A descending grade of 1.5 per cent. above the loading shed, 2 per cent. for 300 ft. at the loading shed and 1.25 per cent. below this to a point distant about 400 ft. from the main connection, assures easy handling of both loaded and empty railroad cars.

An interesting incident in the construction of the siding was the unusual angle of the skew bridge across a small stream. It was not possible to change the course of the run, so the bridge was designed with the center line at an angle of only 15 deg. 15 min. from the center line of the creek channel.

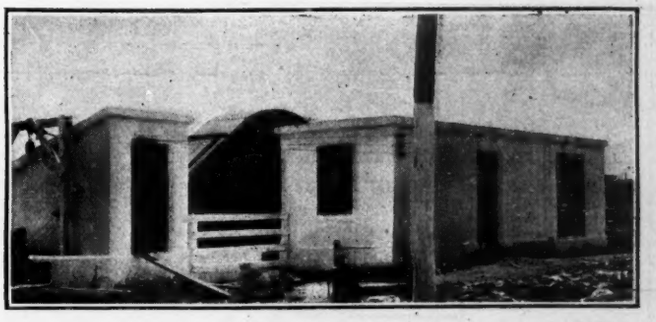
There are only three buildings—the hoisthouse, shop building and fanhouse—in the near vicinity of the surface plant. All of these are of hollow tile and cement plaster construction. The hoisthouse is 34 ft. wide and 40 ft. long and contains the hoist, control board and switchboard, with room for a future motor-generator set installation. The shop building is 32 ft. wide, 77 ft. long, 60 ft. of which is occupied by the blacksmith and carpenter shops, while the balance is taken up by the lamphouse and supply room.



EXTERIOR OF 22,000-VOLT SUBSTATION AT ST. VINCENT MINE

Edison storage-battery lamps are used by all employees except the mine bosses. The lamphouse is equipped with a small motor-generator set, racks and switchboard for charging, and all necessary supplies for repairing and handling the lamps. The fan is a 7 ft. by 3 ft. 6 in. Jeffrey double inlet, blowing with a normal capacity of 125,000 ft. at 200 r.p.m. and 2-in. water gage. It is arranged for a belt drive from a Westinghouse 25-hp., 220-volt, three-phase, 60-cycle induction motor. A hospital and first-aid building is planned for the near future. It will contain hospital bed, operating chair, stretchers, first-aid cabinets, and in fact everything essential to a first-aid station.

All outside equipment, as has been stated previously,

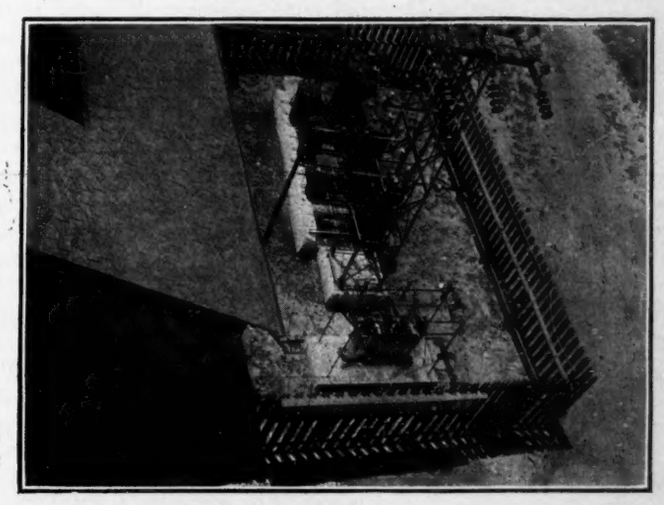


FAN USED AT MINE IS A 7 FT. BY 3 FT. 6 IN. JEFFREY

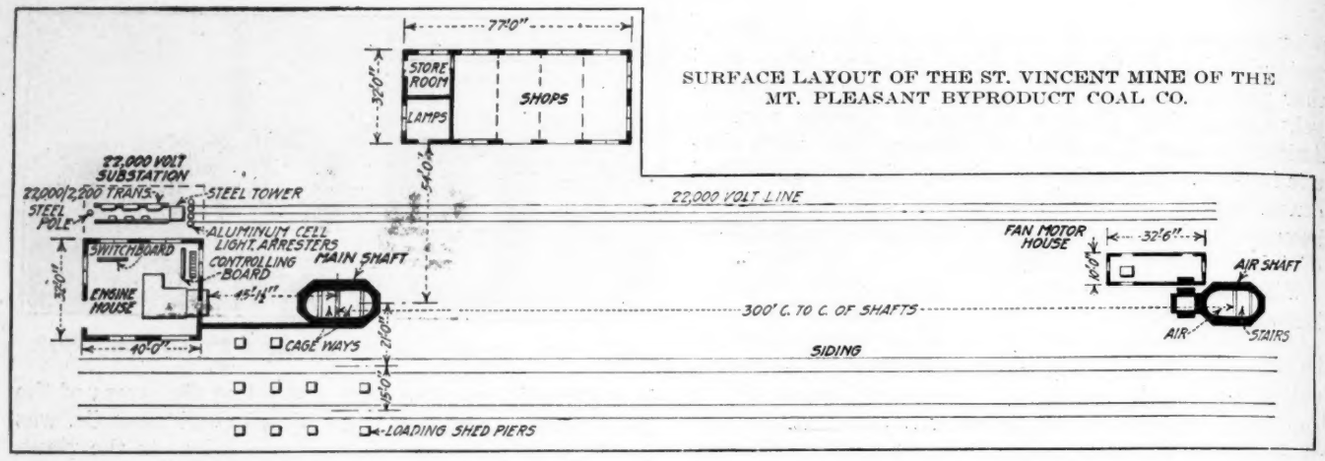
is electrically operated. On account of the stress of the times (summer of 1917) the West Penn Power Co. was not in position to construct a branch line to the plant, and so this work had to be undertaken by the coal company. A line 4600 ft. long was constructed, tapping the main 22,000-volt West Penn line. The substation was designed by the Railway Industrial and Engineering Co., of Greensburg, Penn., and consists of a steel tower terminal, air switch, choke coils and horn gap lightning arresters; busbars extend from this tower to a crossbar on a steel pole. Three 150-kw., 22,000—2200-volt Pittsburgh transformers, and three 50-kw., 2200—220—110 Westinghouse transformers bring the current down to the desired voltages. On account of severe lightning conditions in this vicinity, General Electric aluminum-cell lightning arresters were installed this spring.

The headframe and loading shed were designed by the W. G. Wilkins Co., of Pittsburgh, Penn., and fabricated and erected by the Memphis Steel Construction Co., of Greensburg, Penn. They are built integral and are of the end brace type. The cages are self-dumping, constructed by the Diamond Manufacturing Co., Monongahela City, Penn. The hoist is a Vulcan. It is a self-contained, electrically operated machine equipped with one straight-faced grooved tight drum 7 ft. in diameter, coiling 1¼ in. wire rope, steel machine-cut gears of the single reduction Falk herringbone type, flexible coupling, device for the prevention of overwinding and overspeeding and motor-driven compressor for the air brake. The motor is a Westinghouse 200-hp., 2200-volt, three-phase, 60-cycle, 500-r.p.m. machine.

The hoist and motor are designed to make two hoists per minute of the following loads: Coal in car, 5000 lb.; empty car, 2000 lb.; cage, 6000 lb. The hoist controller is a Westinghouse type "F," form "D," No. 219.



BIRD'S-EYE VIEW OF THE 22,000-VOLT SUBSTATION



SURFACE LAYOUT OF THE ST. VINCENT MINE OF THE MT. PLEASANT BYPRODUCT COAL CO.

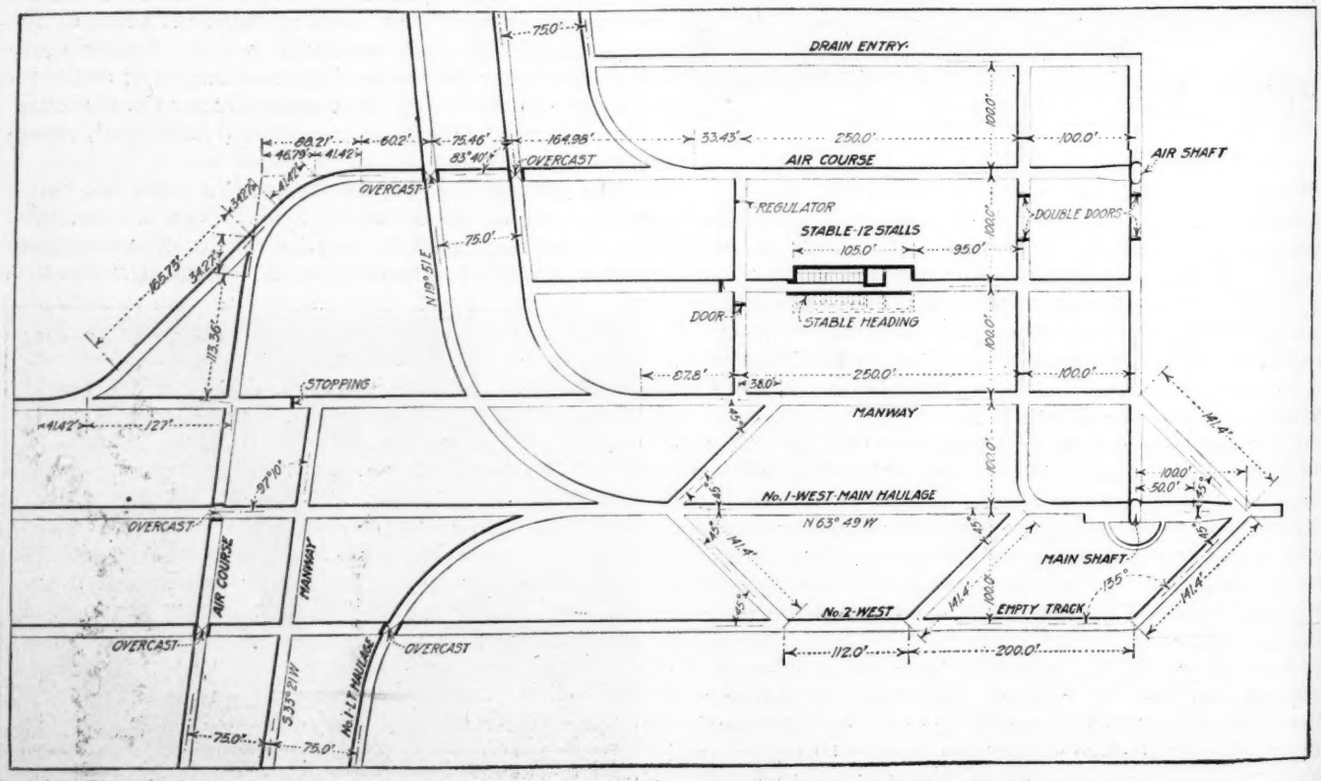
The resistance grids are mounted on a pipe rack and are so placed that any one of them can be removed without disturbing any of the others.

The four-panel switchboard is of the latest Westinghouse construction with oil switching apparatus and remote mechanical hand control. One panel is provided for the incoming 2200-volt line, one feeder panel for the 2200-volt line to the hoist, one feeder panel for the 2200-volt line to the fan, and one feeder panel for 220 volts to the mine. Mounted on a swinging bracket is a 3000-volt scale voltmeter. On each panel are mounted ammeters of suitable scale.

On the incoming feeder panel is mounted a graphic alternating-current watt meter, and a type "C," polyphase, switchboard-type, watthour meter. On each panel is also mounted type "C" overload relays with adjustable definite inverse time elements. Mounted apart on pipe frames are oil circuit breakers, three-pole, single-throw, 300 amp., 4500 volts, automatic in connection with the relays already mentioned. Each panel is equipped with current and voltage transformers. Disconnecting switches on marble bases are so placed at the rear as to be readily accessible.

The graphic watthour meter on the incoming line panel charts the operation of every motor at the plant. The demand is taken directly from these charts, and by watching these diagrams corrections in operating conditions can be made that will materially reduce the kilovolt-ampere demand. These charts are sent to the office every day for careful analysis. Any unusual conditions found are either rectified or explained so as to avoid, if possible, a recurrence thereof.

For instance, one chart showed several instantaneous peaks in one hour. Upon investigation, it developed that several heavily loaded cars of slate had been hoisted in this particular period. It was decided that it would pay not to load so much slate in any one car, but instead to hoist many more cars of rock and in this fashion keep down the instantaneous peak so that it would at least be below an approximate predetermined value.



PROJECTION OF SHAFT BOTTOM AND ENTRIES, ST. VINCENT MINE

SOME OF THE MINERS' HOUSES AT THE ST. VINCENT OPERATION

The West Penn Power Co.'s demand is figured from the significant peak, which will be the "amount of power equivalent to the maximum average kilovolt-amperes drawn for a period of five consecutive minutes during any billing month, plus (here is where the instantaneous peak comes in) 50 per centum of that part of any single operating peak created during the same billing month which is in excess of 150 per centum of such maximum average for a five-minute period." Thus it can be seen that one high peak will have a material effect on the demand.

In conclusion, it might be stated that in operating a plant that is dependent entirely upon purchased electric power, the principal thing to consider in the use of such energy is the operating peaks during the peak hours. All pumping, if possible, should be done during off-peak periods—that is, from 5 p.m. to 7 a.m.—all cutting machines should operate during the same period. All bosses should be instructed how to keep the demand down to as low a point as possible, consistent with good operation. The Randolph-Means Co., of Pittsburgh, Penn., were consulting engineers on the electrical machinery and equipment. Matthew S. Welch, of Greensburg, Penn., was the constructing engineer on all electrical equipment. J. U. Kuhns is president of the Mount Pleasant Byproduct Coal Co.; C. J. Kline, treasurer; D. C. Cramer, mine superintendent, and Joseph Sperko, mine foreman.

Superheaters at British Collieries

By M. MEREDITH
Liverpool, England

Recent experience in Great Britain has served to emphasize the fact that in nearly every case where steam power is employed considerable economy in coal may be effected by superheating the steam. This is particularly the case at collieries, where long steam lines are to be found, and where, in consequence, serious loss arising from condensation and trouble from the presence of water in the pipes are liable to result if the steam is not superheated. It is thus not surprising that the question of applying superheaters both to new and existing boilers is one of much interest to all engaged in the production of coal.

Much has been written on superheating from the point of view of economy, but there is little information available on the practical design and operation of superheaters. The following remarks should therefore prove interesting.

There unfortunately exists a somewhat common impression that superheaters, in most cases, are a source of considerable trouble and annoyance in operation, and are constantly requiring attention and repairs. This belief is quite erroneous. It is true that in numerous instances trouble from leakage at the joints, warping of the tubes and similar difficulties have been experienced almost from the start, but in nearly every case the trouble has been the result either of inferior design and construction of the superheater or of carelessness and neglect on the part of those responsible for the operation of the plant. If a superheater be well designed and constructed, and placed under the charge of a skilled attendant, there is no reason why it should give trouble. There are indeed large numbers of superheaters working today that have never required anything in the way of repairs since the day they were installed, years ago. On the other hand, when the design and the conditions of working have been unsatisfactory, superheaters have been a constant source of trouble and annoyance, and in some instances they have been taken out and scrapped after working but a few months.

CONSTRUCTION MATERIALS MUST BE OF THE BEST

It is of the first importance that the materials used in the construction of superheaters be the best obtainable. Steel of high tensile strength should be used throughout, and the tubes should be drawn from the solid. Cast iron, at one time largely used for headers, is quite unsuitable because, apart from its brittle nature, it deteriorates after continued exposure to high temperature steam. Cast steel is more suitable than cast iron, but inferior to wrought steel. Welded tubes are objectionable because of their liability to fail at the weld; but, owing to the present difficulty in obtaining solid drawn tubes, they are being extensively employed.

Simplicity of construction and acessibility are essential features in design. It must be remembered that the temperature of the gases in which the superheater is placed is seldom less than 900 deg. F., while it is often as much as 1500 deg. Thus the conditions of working are severe, and if an occasional leakage, or even failure of a tube, should occur it can scarcely be wondered at. It is obvious that every facility should be provided for reëxpanding or replacing defective tubes, and hence the importance of accessibility. In some designs it is necessary to disconnect the steam pipes and remove a large bolted cover in order to render the tubes accessible, and this has to be done every time a tube requires reëxpansion or replacement. In others, small openings, covered by screwed plugs, are placed opposite the ends of the tubes, and it is supposed that these are quite sufficient to make the tubes accessible. A superheater can be regarded as satisfactory only when it is designed in such a way that any tube can be made thoroughly accessible in a minute or two either for expanding, plugging up, or replacing, and when, in addition, the tubes can be cleaned externally

under working conditions. The latter provision is important, because the external surfaces after a time become covered with soot, which seriously interferes with the free passage of heat through the tubes from the hot gases to the steam.

An important feature in design is to arrange the joints and attachments of the superheater so that they are not directly exposed to the action of the hot gases, thus minimizing leakage and other troubles. The ends of all the tubes should be bell-mouthed or beaded over to obviate the possibility of the tubes being drawn out of the plates or boxes into which they are expanded.

Various troubles are experienced in the working of superheaters, but of these overheating of the tubes is undoubtedly the most important. Under normal conditions of operation when the steam is flowing freely through the tubes, the trouble in question is not liable to arise, because the heat from the gases is being constantly carried away by the steam. During the periods of raising steam, however, the furnace gases are passing through the superheater chamber, but there is no steam flowing through the tubes. It is at such times that overheating is most liable to occur. Much will depend upon the temperature of the furnace gases.

In the case of a Lancashire boiler, the type mostly used at collieries in Britain, the superheater is placed in the downtake at the rear end, where the temperature is not unduly high, and the water of condensation which collects during stoppages generally serves to protect the tubes against overheating. If, however, the temperature be excessive, it becomes necessary to safeguard the tubes. This may be done either by bypassing the gases (when this is possible) until steam has been raised, or by flooding the tubes with water.

It is not advisable to resort to flooding unless the water is free from sedimentary matter, because of the tendency of the tubes to become coated with deposit. This would lead to the very trouble it is desired to prevent. A further objection to flooding is that it involves a certain amount of risk of explosion, because if the bulk of the water be not afterward removed, it will be carried forward into the steam pipes, where it is liable to set up dangerous water-hammer action.

Priming of the boilers has in some instances led to overheating of superheater tubes, which in consequence of the priming have become partially choked with deposit. An explosion occurred in this way some time ago at a colliery near Durham. Because of the boilers having to be continually forced, priming resulted, and scale to a thickness of $\frac{1}{16}$ in. formed in the tubes, one of which became overheated and reduced to such an extent that it could no longer resist pressure.

When overheating occurs, it causes rapid oxidation and wasting away. It should be borne in mind that the tubes are comparatively thin, and a slight amount of wastage will seriously affect their strength. They will, in consequence, be liable to fail under pressure sooner or later. Hence it is important that every precaution be taken to prevent this trouble. Frequent examination should be made with a view to discovering any evidence of overheating. As a rule the external surfaces of tubes which have suffered from overheating are covered with a reddish-colored oxide, while such tubes show signs of warping. The extent to which wastage has taken place may be ascertained by measuring the external diameter of the tubes at a number of places and comparing with the original diameter.

Occasionally the ends of the tubes projecting beyond the plate into which they are expanded become wasted. The effect of such deterioration, in serious cases, is to reduce the hold of the tubes in the tube sheet, and so involve risk of the affected tubes being drawn out. For this reason it is advisable to withdraw any tubes found to be considerably wasted away at the ends, cut away the wasted portions (afterward annealing the new ends) and then reëxpand the tubes into the plate, a suitable bellmouth being, of course, formed.

To insure safety in operation the question of draining off water of condensation should receive careful consideration. Facilities for draining both the steam pipes and the superheater boxes should be provided, since large accumulations of water at any point may lead to water hammer and explosion.

Suitable draining arrangements, besides safeguarding the superheater and the steam pipes against water hammer, will also prevent wasting of the tube ends, since this trouble is mostly caused by accumulation of water in the superheater boxes. Leakage past the ends of the tubes and the tube plate is common, especially in superheaters of inferior design or construction. It should always be remedied by expanding the tube ends at the first opportunity, because if neglected the scouring action of the escaping steam will cause serious thinning of the tubes.

It is sometimes stated that superheater tubes become generally wasted internally as well as externally, but experience does not appear to bear this out. It is, however, a fact that internal "pitting" is sometimes found at the bends of the tubes, this being the result of accumulations of water of condensation. This defect may be discovered by careful hammer testing.

As a safeguard against explosion, a safety valve should be fitted to the superheater. This may be either of the dead-weight or the spring-loaded type. If a dead-weight valve be used, it is important that suitable stop pins be fitted to obviate the possibility of the internal valve being blown off its seat; if a spring-loaded valve be adopted, suitable appliances should be fitted for the purpose of testing the valve.

American Institute of Mining and Metallurgical Engineers

Charles Schwab will be a speaker at the banquet of the American Institute of Mining and Metallurgical Engineers to be held in Chicago, Sept. 22 to 26 inclusive. Elaborate plans for both the technical and social side of the meeting have been perfected. Engineers who make the trip to Chicago for this meeting are assured of one of the most interesting annual meetings which the Institute has held. In addition to some hundred and fifty papers which have been prepared for the meeting, trips to the zinc-smelting districts, the steel works at Gary and the refineries at Whiting and East Chicago are included. A boat trip on the lake together with numerous social events have been arranged for the ladies. The Fifth Annual Exposition of the Chemical Industries will be held in Chicago at the same time as the meeting of the American Institute of Mining and Metallurgical Engineers, and members of the Institute are cordially invited to attend the exposition and become better acquainted with the allied industries.

Results Obtained from the Use of the Cement Gun at the Cadogan Mine

BY FRED NORMAN*
Kittanning, Penn.

It is seldom that illustrations bring out a point in a more striking manner than do those accompanying this article. They might almost be published as a series of pictures without words, and still tell the story. However, the writer of the article enlarges on the situation at the mine in question, states the difficulties in operation, on account of a bad, friable top rock, and notes how such difficulties were overcome by the use of the cement gun. Valuable cost data also are given.

QUITE a troublesome condition often met with in bituminous coal mines is what is known by the miners as "buckwheat slate" roof. This name is rather more descriptive than scientific, but conveys the idea accurately. It is a condition of the roof and consists of a broken slate that rapidly disintegrates by the action of the air currents and falls in small particles.

This is a continuous performance, and not alone affects the roof directly above the entry, but the slate breaks sharply at the ribs and this in turn allows a larger arch above the entry. Thus still more surface is exposed to the deteriorating action of the air and the amount of "buckwheat slate" falling is increased.

To timber against this condition is both costly and ineffective. Aside from the dangerous results, weakening of pillars and falling slate, the cost and inconvenience of maintaining men to clean the tracks is obvious, and delays to transportation from dirty tracks is quite a factor. It is seldom that large enough pieces fall to cause direct accidents, but the blocking of the tracks from fallen slate may cause wrecks to locomotives and cars. To sum up, a condition is created which is hard to handle; furthermore, it is dangerous and also puzzling to the mine officials.

The Cadogan mine of the Allegheny River Mining Co. is six miles south of Kittanning, Penn., along the west bank of the Allegheny River. Here conditions were encountered in the "B" (or Lower Kittanning) seam, through large sections of the mine, which for some time almost completely baffled the mine officials.

The constant falling of slate made it necessary to employ men, during the night, to load up the débris that fell after working hours, in order to keep the tracks clear for the locomotives in the morning. Difficulty was also experienced in keeping trolley hangers in place. After idle days this source of annoyance was especially severe and something had to be done quickly to relieve the situation.

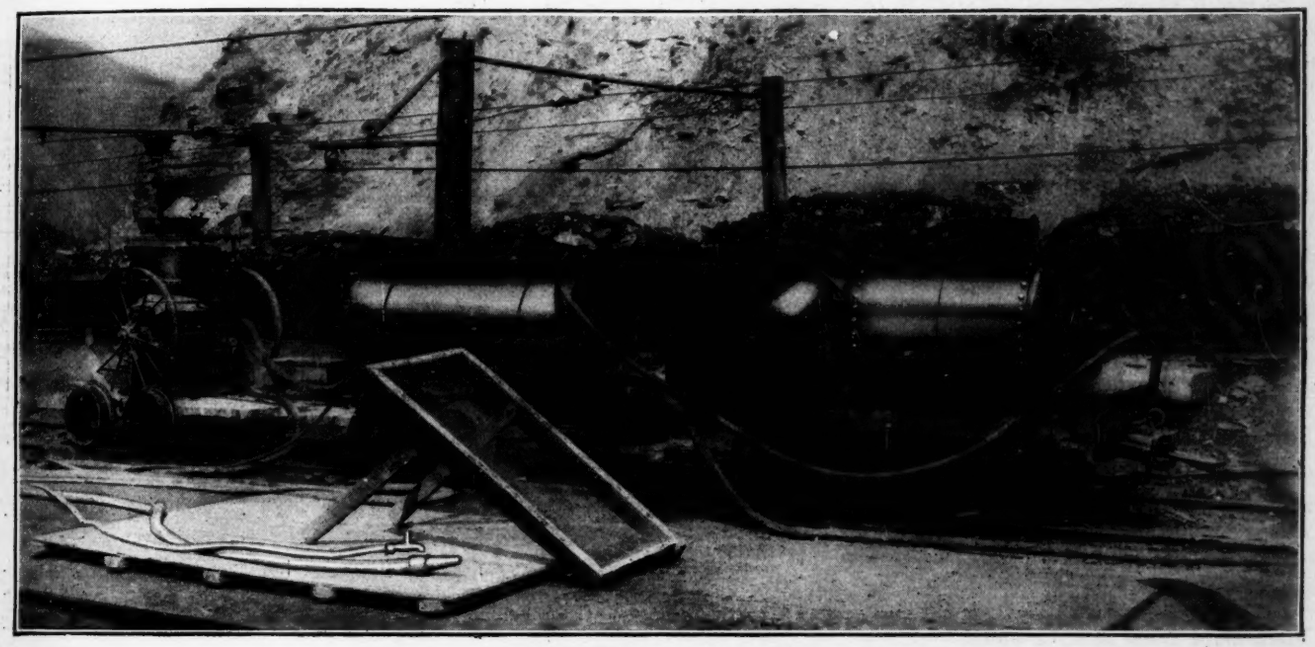


FIG. 1. CEMENT GUN OUTFIT MOUNTED ON TRUCKS

At the instance of the superintendent of the mine, an investigation of the work of the cement gun at the Bruceton Experimental Mine was made, with the result that the company decided to give this cement apparatus a tryout. To this end the necessary equipment was purchased and put in working order. The outfit consisted of the cement gun, water tank and motor-driven air compressor and receiver (all mounted on trucks), together with a mixing board and sand screen, shown in Fig. 1.

To operate this outfit six men were employed as follows: One nozzleman, one gun operator, two attendants to screen and mix sand, and two men to prepare the

*Chief engineer of the Allegheny River Mining Company.

FIG. 2. AN ENTRY BEFORE TREATMENT

top and sides of the entry. All loose material must be carefully trimmed off before cement is applied, to insure a good job. As high as 120 lin.ft. of entry have been cemented in one eight-hour shift, but the average run falls short of this, and actually is, by computation of several months' work, 85 lin.ft. per shift.

The gunite (or cement and sand mixture) consists of one part cement and three parts sand; it is blown against the rock face which is to receive treatment with about 30 lb. per sq.in. pressure. The cement penetrates the small crevices and interstices to a considerable depth and the surface coating of gunite over the rock will average about $\frac{3}{4}$ in. thick.

Great care must be exercised to remove all loose and disintegrated material, so that the gunite can get a good grip on solid rock; the necessity of this is easily seen by inspecting Fig. 2, which shows an entry before treatment. Note the "buckwheat" on the track and the ragged appearance of the slate of the roof and the sides. This entry, however, has not reached the stage where the rock deterioration actually extends over the coal; but such would be the case in a short time if the rock were left without treatment. The débris on the track is the accumulation of a day and is an average of conditions met with.

Fig. 3 shows a view of a main-haulage entry treated with a cement coating which speaks for itself. Fig. 4 shows the junction point of two haulage entries treated with the cement coating. In this last illustration the tracks are littered with coal shaken off the cars rather than slate from roof or sides.

The cement gun outfit at this mine was put into operation Sept. 12, 1918, and worked mostly during night shifts for sixty-four eight-hour shifts, up to the time statistics were computed. During this period 5482 lin.ft. of entry, or approximately 87,700 sq.ft. of surface, was coated.

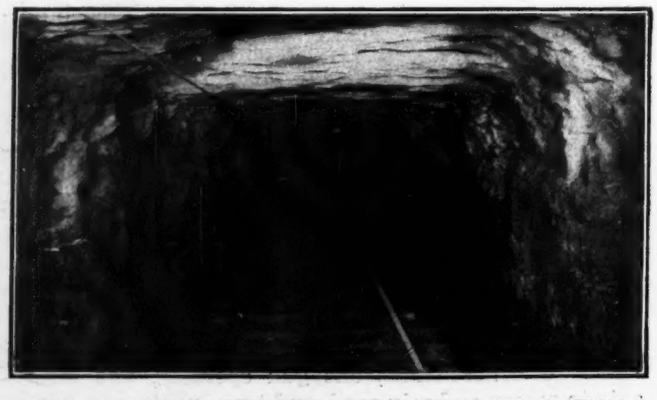


FIG. 3. ENTRY TREATED WITH CEMENT COATING

The average work per eight-hour shift was 85 lin.ft. of entry, or 1370 sq.ft. of surface, covered with a $\frac{3}{4}$-in. thick cement coating. An accurate account of the cost of this work was kept, as follows:

Labor	$2176.03
Sand, 264 tons, at $2.65	699.60
Cement, 502 bbl., at $2.52	1265.04
Total	$4140.67
Cost per lin.ft. of entry	$0.7553
Cost per sq.ft. of surface	.0472

The labor costs include: Loading sand, cement and water outside; trimming of entry; mixing sand and cement by hand; the operation of the cement gun; also the training of men for the work.

Up to the present time the cement coating of the entries has proved quite satisfactory and neither breaking of the coating nor signs of slacking behind the coating have been observed in work about eight months old. Thin places will show up in time and must be recoated.

For brattice work the outfit also proves efficient; breakthroughs walled up with rock or slate are given a coating of cement and sand—gunite—which, by the force of the gun, penetrates every little crevice and effects an air-tight and quite satisfactory job.

FIG. 4. JUNCTION POINT OF TWO HAULAGE ENTRIES TREATED WITH CEMENT COATING

The cement gun can be utilized for many other purposes; when not in use the compressor is kept busy blowing out motors and generators, operating pick mining machines for entry driving, or furnishing power for air drills or rivet hammers if such work is demanded on a construction job or special work of any kind.

Mining Company May Resume Night Schools for Employees

For a number of years the Lehigh Coal and Navigation Co., with headquarters at Lansford, Penn., has conducted a free night school for employees at Nesquehoning. Here was taught mining, mechanical and electrical engineering, English and naturalization. Primary classes were also conducted. Under stress of war conditions the work was cut down in 1918, until only the mining class remained. Now the company is considering the reëstablishment, for the coming year, of all the classes on the old basis, and possibly the extension of the work, in order to give the men a more thorough training than ever before.

Some Truths About Anthracite

So many conflicting reports have been spread regarding the threatened scarcity of fuel, that the public is at a loss to understand the true facts in the situation. To clear up some of the confusion, the Anthracite Bureau of Information, of which Edward W. Parker is director, has compiled some interesting data that disclose the exact state of affairs insofar as hard coal is concerned. The report issued by the Bureau is reproduced for the enlightenment of *Coal Age* readers.

THERE is every reason to believe that there will be sufficient supplies of anthracite for domestic use next winter, provided there is no marked diminution of labor supply, and also provided that next winter is not of undue severity and that consumers continue to spread their orders so the mines may work steadily during favorable weather. A continuous flow of coal from the mines is the best guarantee against any shortage next winter, and a continuous flow of coal depends upon continuous purchasing.

Total shipments of anthracite for the first three months of the current coal year, beginning Apr. 1, were 16,556,221 tons, against 15,713,658 tons in the corresponding period of the last normal year, 1916, an increase of more than 800,000 tons.

The coal years, beginning Apr. 1, are the only periods from which accurate production and consumption comparisons can be made. Coal mined in January, February and March of this year, for instance, belongs to last winter and was burned last winter. Any loss of output in January does not affect supplies after Apr. 1. The principal decrease in this *calendar* year was in February and March, and it was due to the abnormally mild winter which enabled householders, who had bought heavily last summer and fall, to go through the whole season without additional purchases and even, in some cases, to have some coal left over and available for next winter.

Falling Off Principally in Steam Sizes

Total shipments for April-May-June in the years 1916, 1917, 1918 and 1919 have been 15,713,658 tons, 19,558,861 tons, 20,123,298 tons and 16,556,221 tons respectively. The apparent falling off this year is about 3,500,000 tons, but most of this apparent decrease is due to the falling off in the production of steam sizes from washeries, which contributed a considerable tonnage in 1917 and 1918.

The actual falling off in shipments of domestic sizes, that is pea coal and larger, is about 900,000 tons for the first quarter of this coal year as compared with 1918.

Miners are taking more holidays this year than they did during the war. The total number of generally observed holidays this year, from Apr. 1 to June 30, was 12; last year there were 9 in the same period. The lost output for these three extra holidays would nearly have made up the 900,000-ton decrease in shipments of domestic sizes. Local celebrations in honor of returning soldiers have been numerous, and have had the effect of reducing output by shutting down temporarily the nearby mines or at least diminishing the working force.

Coal consumers, who last year took any domestic size they could get, are more discriminating this year. They want chiefly nut, egg and stove sizes. Pea coal has been neglected and is going into storage. There are considerable tonnages of pea coal, which is a first-class range fuel and even useful in furnaces, available for immediate shipment. As the result of temporary indifference to this size, the amount in storage at the end of January, approximately 38,000 tons, grew to approximately 213,000 tons by the end of March and to about 390,000 tons by the end of June.

Anthracite is not a single commodity. It is three commodities. Broken coal and the sizes larger are metallurgical and gas-making fuels. Sizes from egg to pea inclusive are essentially domestic fuels. Sizes below pea are steam fuel, in which most householders have no direct interest, though self-feeding household furnaces in which buckwheat No. 1 and even buckwheat No. 2 can be economically and satisfactorily used are now available.

"Mountains of Coal" Not for Domestic Use

In mining coal and in crushing it for preparation in the breaker, a large quantity of small coal is unavoidably made. This constitutes the steam coal, of various sizes. It amounts to about 35 or 40 per cent. of the whole production.

If no steam coal at all were shipped there would be a heavy "coal shortage" shown on paper without lessening the available household supplies one pound. The "mountains of coal" referred to in unauthoritative communications from the hard-coal region are made up of such sizes. Their presence or absence has no bearing on the fuel available for ordinary domestic use.

There were approximately 160,000 workers in the anthracite mines in the first three months of the coal year beginning Apr. 1, 1916. There are approximately only 146,000 today, but the 146,000 in April, May and June of this year produced over 800,000 tons more than the 160,000 produced in the corresponding period three years ago. Labor supply may show some increase later on, as soldiers and munitions workers get back to the coal region.

Anthracite prices have advanced less, so far as the operator and wholesaler are concerned, than almost any other commodity entering into daily life. This statement applies to the whole period since the European war began. There is no large industry yielding less average return on the capital invested in it than the mining of anthracite.

The *Monthly Labor Review*, published by the Bureau of Labor Statistics, United States Department of Labor, in its issue for June, 1919, page 95, has carried index numbers of wholesale prices by commodity groups up to and including April, 1919. Taking the 1913 price as 100, it shows that fuel and lighting, which includes coal, advanced 79 points. Farm products advanced 133, food 107, clothes and clothing 115, house furnishings 151, miscellaneous commodities 116, and all commodities 103.

The same publication, in its May issue, pages 144-146, carries wholesale prices for individual commodities up to the end of March, 1919. On the basis of 100 as the 1913 price, this official Government report finds that these advances have been made: Cattle, 118.3; bacon, 140.2; butter, 94.2; milk, 117.1; flour, 144.6; granulated sugar, 104.7; cotton, 113.3; bleached muslin, 126.8; clay worsted suitings, 127.9; oak sole leather, 81.5; women's

shoes, 123; Bessemer pig iron, 89.9; run-of-mine bituminous coal, 81.8; chestnut size anthracite, the most expensive size, 50.6. Only seven commodities in a total of 51 show smaller percentages of advance than anthracite. These are: Heavy native packer hides, 50; copper wire, 4.2; pig lead, 18; spelter, 12; waterwhite refined petroleum, 47.2; motor gasoline, 45.8; and electrolytic copper, which shows no advance whatever but is 3.8 points below the 1913 price. Most of these have shown much larger advances during the war period (spelter, for instance, at one time having advanced 279.3 per cwt., and pig lead 159 per cwt.) but have declined since the signing of the armistice.

White ash nut coal, in the week of Feb. 20, 1919, sold for $6.20 a ton at the mine. In the week of July 19, 1919, the circular was $6.50 at the mine, an increase of 4.84 per cent. If it advances to $6.70 by Sept. 1, it will be 8.06 per cent. higher than in the week of Feb. 20. The index price of 31 foodstuffs, as reported by Bradstreet's, was $4.60 in the week of Feb. 20. In the week of July 19 the index price was $5.22, an increase of 13.47 per cent. over Feb. 20 and 18.1 per cent. greater than in the corresponding week of 1918.

Dr. H. A. Garfield, Federal Fuel Administrator, in his statement of Jan. 31, 1919, lifting restrictions on anthracite, said:

> For the purpose of arriving at a fair increase in price to cover the increase in wages recommended by the War Labor Board last October, an examination was made to determine the costs of the various anthracite producing companies. The result of this examination showed that the general increases in the price of materials and labor had raised the cost of mining anthracite to such an extent that many of the companies were not receiving a fair return and that some producers of necessary coal were actually sustaining a loss on the sale of coal at the Government prices. . . . Had the Fuel Administration's active control over maximum prices on anthracite coal been continued, the cost examination above referred to shows that it would have been necessary, on the basis of the present wage scale, to raise these maximum prices possibly as much as 50c. a ton.

Governor W. C. Sproul, of Pennsylvania, as the result of his study of the anthracite situation and prices, on Apr. 4, 1919, issued a statement in which he said:

> I am convinced that Dr. Garfield's judgment in this matter was correct and that the action of the producers in announcing a gradual increase of 10c. per ton for five months, beginning May 1, is justified, considering all the conditions confronting the trade. . . The Federal Fuel Administration's experts showed that the cost of mining and preparing anthracite coal has increased 52 per cent., while the price at the mines has increased only 30.5 per cent.

This statement was based on a report on costs and prices made prior to the wage advance in November, 1918, which added $1.05 a ton.

R. V. Norris, engineer for the United States Fuel Administration, prepared a paper on anthracite mining costs, read before the American Institute of Mining Engineers in New York in February, 1919. It contained tables of prices and average costs, together with graphic charts showing the cost of production as a whole and increased labor costs. It also showed that in one instance, Dec. 1, 1917, a war labor bonus was granted which increased the production cost 76.3c. a ton, against which an increase of only 35c. in the maximum price of coal was allowed. The charts and accompanying tables showed that not less than 25 per cent. of the anthracite output during the period covered by the paper had been produced at an actual loss on operating costs alone. This paper specifically stated that the cost of production had increased 52 per cent., while the selling price had increased but 30.5 per cent. over pre-war figures.

Capital investment in anthracite mines, the United States Fuel Administration notes, runs as high as $11 per ton of output, with the average investment $7.50 to $8 per ton. Based on the actual production for the calendar year 1918, which was 88,237,575 tons, and taking $7.50 per ton as the average capital investment, the total capital investment of the anthracite industry is almost $662,000,000. To allow 6 per cent. interest on this investment would mean a margin of about 50c. per ton after all costs, overhead, selling expenses and other details of upkeep and maintenance had been paid.

Testimony taken by the Sub-committee of the United States Senate Committee on Manufactures in January, 1919, showed that the oldest anthracite company, which produces between 4,000,000 and 5,000,000 tons a year, had an actual margin of 6.89c. per ton between cost of production and selling price for the whole 1918 output. This margin of 6.89c. was expected to care for administrative salaries, interest, Federal taxes and dividends. The actual margin in November, 1918, was but 5.6c., while December showed a loss of 2c. per ton.

During February and March of this year, when trade was dull owing to the mild winter and to the fact that people had generally stocked up as much as possible in 1918, a considerable tonnage of the larger domestic sizes—nut, stove and egg—was stored. After Apr. 1 this coal began to move from the storage yards and its place has been taken largely by steam sizes, which have not been moving freely. It is these piles of steam coal which constitute the "mountains of coal" in unofficial reports from the coal region. The largest "mountain" in Schuylkill County, where those reports emanate, is a stock yard with about 1,000,000 tons capacity.

Distribution of domestic sizes has been moving satisfactorily, on the whole, since Apr. 1. The City of Washington, for example, under the United States Fuel Administration allotment system, in April and May of last year received 81,011 tons from a group of companies. This year, in the corresponding period, the same companies have shipped 87,890 tons to the city. Some of the larger producing interests report that their tonnages to important consuming districts are practically on a par with last year's shipments.

Advances in Overhead Line Material Likely

Constant increases in costs are reported by various manufacturers of mining overhead line material who fear that another general advance in selling prices will soon have to be announced.

As an instance of present conditions, it is stated that shellac which sold in the neighborhood of 14c. per pound just prior to the war, has lately been quoted at $1.10 per pound. During the last two weeks malleable iron in small castings has been advanced, on an average, 15 per cent., owing to the high wages which the foundries have had to grant to the molders. The general increase in the wages of labor used in the manufacture of overhead material, will average about 30 per cent.

During the early part of the year the prices of ears and other bronze goods were reduced, to accord with the reduced market price of copper, but the continual advance in the copper market, plus the increased cost of labor, will probably put the cost of this class of material up where it was during the war, or possibly even higher. Apparently, no relief is in sight.

SURFACE PLANT OF THE NEW NO. 8 MINE AT MICHEL COLLIERY

Plants of the Crowsnest Pass Coal Field

By Robert Dunn
Victoria, B. C.

SYNOPSIS — *The mountainous country of the Crowsnest Pass district necessitates some complicated means and methods for getting the mine product into the railroad car. In some operations compressed air is employed both for haulage and for cutting. This requires the installation of much machinery in the power plant.*

THE accompanying illustrations give a good idea of the plants of the Crow's Nest Pass Coal Co. at Michel and Coal Creek. The tipple and storage bin, No. 8 mine, Michel Colliery, was installed in 1913, the old No. 8 mine having been sealed off in 1911 following the outbreak of fire and a new entry to the same bed being driven above the old one and some 535 ft. above the floor of the tipple.

From the pit mouth of the new No. 8 mine a double-track tramline, having a grade of ½ per cent. in favor of the loads, circles the hill for a distance of 930 ft. The coal is hauled along this road to a Phillips crossover dump, where it is discharged into a bin. To convey this coal to the tipple below, a double-track standard-gage gravity incline, 1130 ft. long, has been constructed. This incline is equipped with a 1⅛-in. Acme rope and a pair of counterbalanced skips having a capacity of seven tons each. These are operated from a pair of 8-ft. drums controlled from the top loading station. These skips are designed and arranged to automatically discharge into a bin provided at the bottom, and are capable of handling 300 tons of coal an hour.

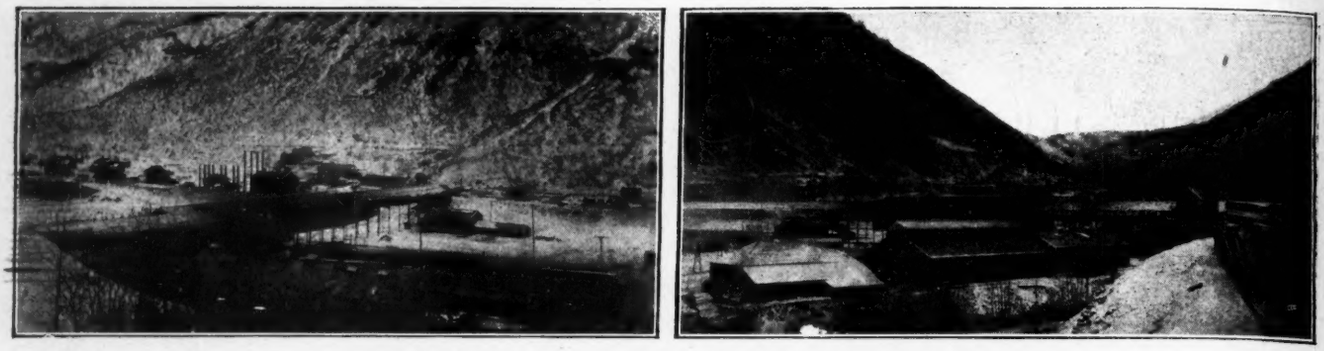
In order to control the landing of a full skip on the bottom grade, it being 63 per cent., while the top averages 43 per cent., a double compound brake operated in connection with two vertical 7-ft. wheels was installed, the one brake being constantly in use while the other is used for emergency purposes only.

The coal lowered by these skips is loaded out of the bin into the mine cars and taken to the tipple by endless-rope haulage. This was a portion of the plant as it existed six years ago and there have been no important changes. One innovation, however, is the Edison safety electric lamp, which is in use throughout the Michel mines in place of the Wolf safety lamps, the latter having been discarded recently. G. W. Williams is the mine manager at Michel Collieries.

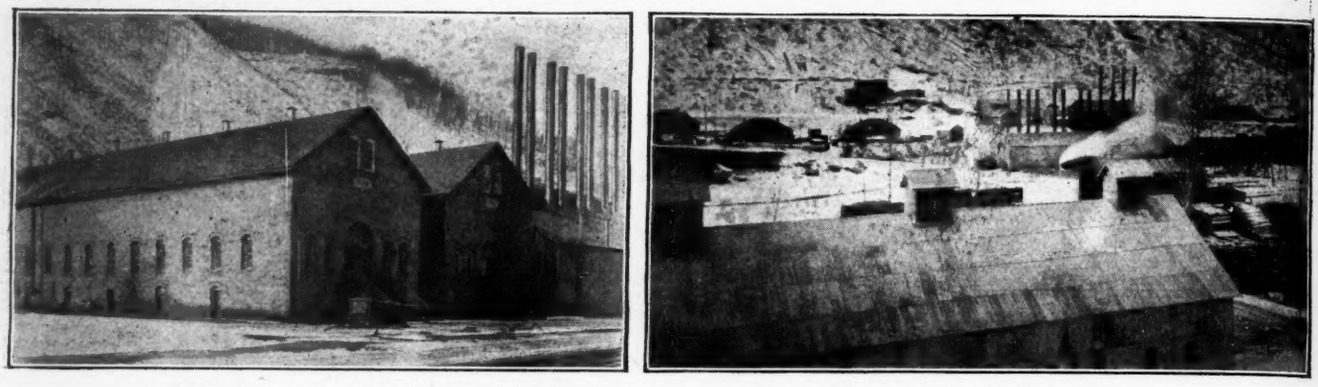
One of the most striking portions of the plant at the Coal Creek Collieries, where Bernard Corfield is the mine manager, is the steel tipple. This is over 900 ft. in length. It has a three-track approach on either side and is electrically operated. It is equipped with rotary dumps and has screening and picking tables, operating on Nos. 1 and 2 sides. There are two sets of hydraulic box-car loaders, which will tip an ordinary 40-ton box car to a 45-deg. angle.

The main power plant has a battery of 13 boilers, capable of developing over 2000 b.hp.; also one high-pressure Ingersoll-Rand three-stage compressor, supplying air for the underground air locomotive haulage; one Walker Brothers "Wigan," and one Rand straight-line low-pressure compressor for supplying air for the underground hoists, pumps, etc. Three electric generators provide power for the operation of the tipple machinery and the lighting system of the town of Fernie.

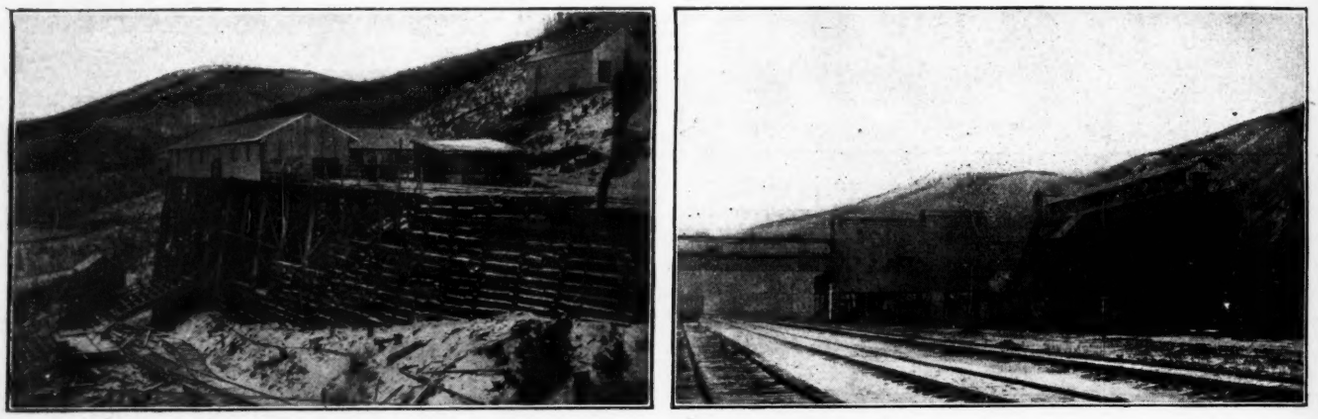
Alterations have been made in the ventilating fans at "B" North and No. 1 South mines in connection with



COAL CREEK COLLIERY AND A VIEW OF THE TIPPLE



VIEWS OF THE MICHEL COLLIERY POWER PLANT AND COAL CREEK POWER PLANT



TIPPLE AT THE NO. 8 MINE OF THE MICHEL COLLIERY AND A VIEW OF THE PLANT FROM THE EAST

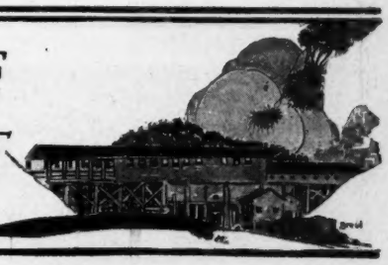
the rearrangement following the improvement of the ventilation systems. Here, too, the Wolf safety lamp has been entirely replaced by the Edison electric safety lamp, except that the firebosses use the old lamp for testing purposes. Both at Michel and at Coal Creek the Burrell gas detector has been adopted, there being four of these instruments at the Michel mines and eight at Coal Creek—one for each of the latter mines and a spare. At Coal Creek the company's rescue station is equipped with five sets of two-hour positive-pressure Draeger apparatus, two pulmotors and the necessary spare parts and equipment, while the same in every respect is kept in readiness at the adjoining camp at Michel.

While on this subject it is pertinent to observe that the government's rescue station at Fernie, B. C., is modernly equipped and in constant readiness for emergency calls. It is in charge of J. T. Puckey, who recently went through a special course of instruction in the use of the Gibbs apparatus, which was installed by Dudley Michel, of the first-aid branch of the Department of Mines. The equipment here consists of six sets of the Gibbs apparatus; six sets of two-hour Draeger apparatus, positive pressure; one pulmotor; one oxygen inhaler, and the necessary spare parts and equipment.

W. R. Wilson, the general manager of the Crow's Nest Pass Coal Co., has his residence in Fernie, B. C., while Robert Strachan, who has had long experience as a coal-mine operator, is the inspector of mines for the district.

IT IS of more than passing interest to know what the temperature is in a furnace and how heat is distributed throughout the boiler. As the temperatures in the firebox are, roughly, 2500 to 2750 deg. F., a permanent installation of a heat-recording instrument at this point is out of the question. In the last passes of the boiler the temperatures often average about 1000 deg. F. The stack temperatures are frequently from 400 to 600 deg. F. These latter temperatures are an indication of what we may expect the temperature to be in the firebox. Close attention to these temperatures may indicate irregularity in firing, which may then be corrected before a change in pressure in the boiler occurs. Also, if the flues are dirty, much heat from the furnace passes up the stack.

DEPARTMENT OF HUMAN INTEREST



Fifth Annual Kansas State First-Aid Meet

BY J. J. RUTLEDGE*
McAlester, Okla.

The fifth annual Kansas State First-Aid Meet was held on the athletic grounds of the State Manual Training Normal School, Pittsburg, Kan., June 7, 1919. The event this year differed from previous ones in that there was no contest in first-aid work and there were no judges on the field. The teams simply demonstrated the first-aid problems assigned to them. There were 104 persons on the field giving demonstrations in first-aid work. Twelve one-man events and two team events were demonstrated. The miners were given printed programs listing the events, and were allowed a certain length of time to work out the problems.

A miniature mine tunnel had been built on the grounds near the place where the first-aid demonstration was given, and after the first-aid work had been concluded an explosion was caused to occur which destroyed a portion of the tunnel. Miners equipped with breathing apparatus entered the tunnel, filled with smoke and noxious gases, in order to illustrate how mine-rescue work was carried out in mine workings after an explosion.

In the evening following the contest (or demonstration) there was a banquet in the Normal School, with 400 persons present. Three to six minutes' talks were made by President W. A. Brandenburg, State Manual Training Normal School, Pittsburg, Kan., toastmaster; W. D. Ryan, mine safety commissioner, U. S. Bureau of Mines; W. L. A. Johnson, commissioner, Southwest Coal Operators' Association; Alexander Howat, president, District No. 14, United Mine Workers of America; John H. Crawford, state commissioner of labor for Kansas; J. A. Fowler, secretary, Pittsburg Chamber of Commerce; W. P. Hawkins, president, Western Coal and Mining Co., St. Louis, Mo.; W. T. Morris, inspector of mines for Associated Companies; Ira Clemens, president, Clemens Coal Co., Pittsburg, Kan.; Dr. J. J. Rutledge, U. S. Bureau of Mines, McAlester, Okla.; Joseph Fletcher, general superintendent, Jackson-Walker Coal and Mining Co.; Philip H. Callary, attorney at law, Pittsburg, Kan.; James Sherwood, assistant commissioner of labor (chief mine inspector); and William Harkes, superintendent, Central Coal and Coke Company.

After the banquet the mine representatives of the various teams met together and elected representatives to attend the National First-Aid Contest at Pittsburgh, Penn., Sept. 30 to Oct. 1, 1919. In this way a team of six men and one substitute was provided for, and it is believed much feeling engendered by the ordinary first-aid contest was avoided.

*Mining engineer of the Bureau of Mines in charge of McAlester mine rescue station.

The first-aid teams were composed of two men each. The following coal companies were represented:

	Coal Companies	No. of Teams
1.	Western Coal and Mining Co.	19
2.	Wear Coal Co.	10
3.	Central Coal and Coke Co.	7
4.	Jackson-Walker Coal and Mining Co.	5
5.	Clemens Coal Co.	4
6.	John M. Young Coal Co.	5
	Total	50
	Young men's teams	1
	Boys' teams	1
	Total	52

The following towns furnished men for the demonstration: Pittsburg, Arma, Franklin, Yale, Frontenac, Girard, Cherokee, Ringo, Dunkirk, Fleming, Daisy Hill and Washer Camp.

Alabama Mines Hold First-Aid Meet and Barbecue

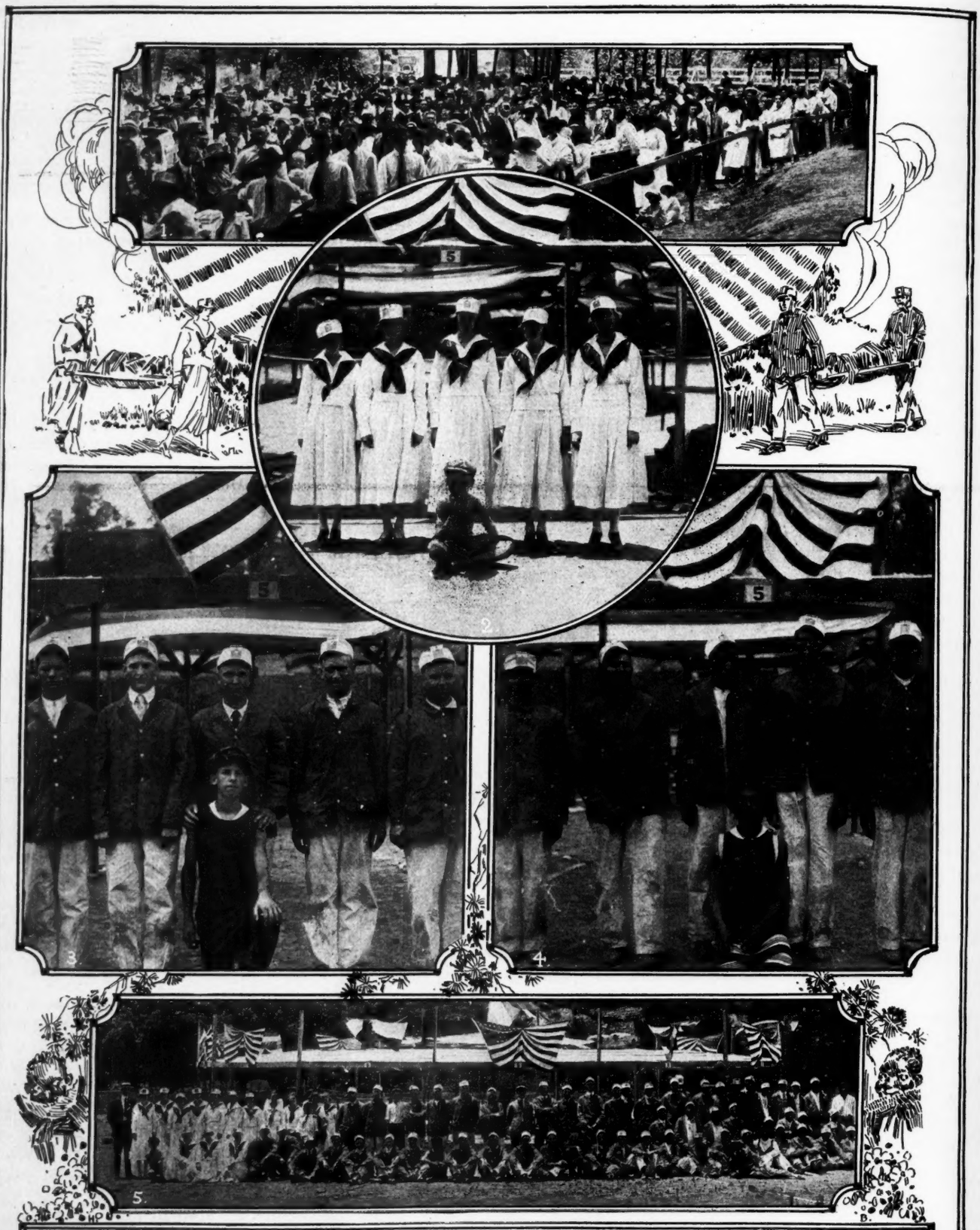
BY F. R. BELL*
Margaret, Ala.

One of the most interesting events to many mining people of Alabama was the first-aid field meet of the Alabama Fuel and Iron Co. employees, which was held at Acmar, Ala., on July 4, under the auspices of the U. S. Bureau of Mines. The marked success of the meet was due in large part to the untiring work of James M. Cobb, foreman miner and instructor of the U. S. Bureau of Mines Station, West End, Birmingham, Ala., and to the suggestions and advice of W. B. Plank, district engineer of the U. S. Bureau of Mines, both of whom through their unselfish efforts and pleasant contact, secured admirable coöperation of the men and officials. Although only teams from the mines of the company were permitted to compete in the contests, many mining men of prominence in the state were present as guests and officials.

Fifteen teams competed in the meet, and these were divided as follows: Six teams of white men, six teams of colored men, and three of women, representing the operations at Acmar, Margaret, Acton and Colgate. All the teams were given six events to work out, the problems given the women, however, being different from those given the men, though they were scarcely any easier. The percentages made show that the women did equally as well as if not better than most of the male teams.

Prizes to the amount of $150 in gold were given to the teams finishing with highest average percentages, the respective awards being as follows: Best white male team—$60 in gold—won by Acmar Team No. 1, percentage 95⅝; best colored male team—$60 in gold—won by Acmar Team No. 3, percentage 93½; best female team—$30 in gold—won by Margaret Team No. 11, percentage 96½.

*General superintendent, Alabama Fuel and Iron Company.



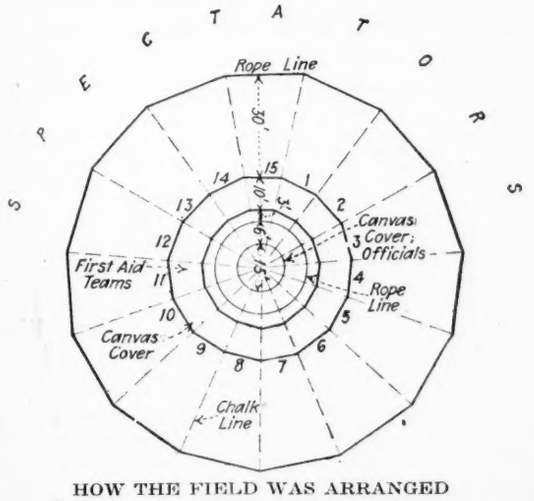
Winning Teams at the Alabama First-Aid Meet

1—Part of the crowd at the barbecue dinner. 2—Winning team of ladies. Left to right: Minnie Guest, Ella Mae Ackridge, Olivia Lilley, Effie Hagan (captain), Annie Mewbourne, Raymond Eddy (patient). 3—Winning white male team. Left to right: Gady Holloway, Wallace Pyles, Robert Hartley (captain), George Hutchins, Joe Hartley, Will Martin (patient). 4—Winning colored male team. Left to right: Jesse Sanders, John Smith, W. Brown, Jeff Washington, Ellis Jones (captain), Dan Davis (patient). 5—Assembly of first-aid teams.

All teams were trained by the standard 1917 method of first-aid instruction for miners, originated by the U. S. Bureau of Mines, and all the judges understood and graded the participants according to this method. The decisions were eminently just in every instance, and the awards met with the general approval of both the spectators and the contestants.

The accompanying illustrations afford an excellent idea of the arrangement of the field, which was found to be most convenient for the teams, officials and visitors.

While this meet was considered by all a delightful success, it is not the first of its kind held by



HOW THE FIELD WAS ARRANGED

employees of the Alabama Fuel and Iron Co., which has always taken a leading part in safety-first and first-aid movements in the state. The Acmar teams have in their possession now two silver loving cups won at the last first-aid field meet held at Birmingham, Ala., in 1916.

In addition to the first-aid contests, all present enjoyed a "barbecue dinner" and other refreshments shortly after the noon hour. In the afternoon there were baseball games between both the white and colored ball teams from the respective mining camps. Dancing also was engaged in by many of the younger folk, and only that weariness that comes to those who have had their fill of pleasure and are willing to call it a perfect day ended the festivities.

Statewide First-Aid Contest Held in Norton, Virginia

Quite a goodly gathering witnessed the first-aid contest held in Norton, Va., the afternoon of Saturday, July 26, 1919, under the auspices of the U. S. Bureau of Mines and the Virginia Coal Operators' Association. Fifteen teams participated, coming from operations in all parts of the state, and the performances of both individuals and teams reflected in great measure the thoroughness of the training they had received.

In the one-man event, which was the first on the program, Team No. 5, from the Stonega plant of the Stonega Coal and Coke Co., captured first prize with a score of 100. Three additional awards were offered for second, third and fourth places, and these went respectively to Team No. 10, Keokee plant, with a score of 100; Team No. 14, Pardee plant, with a score of 100; and Team No. 9, Wilder plant, with a score of 98.

Next came the two-man event, the winners in which were as follows: First, Team No. 2, Roda plant; second, Team No. 7, Clover Fork plant; third, Team No. 9, Wilder plant; fourth, Team No. 11, Cranes Nest. All the winners in this event tied on the score, making 100 per cent. The prizes were decided by draw.

In the three-man event, which followed, six teams made an average of 100 per cent. As only two prizes were awarded, these were drawn for, the lucky winners being as follows: First, Team No. 6, Sutherland; second, Team No. 3, Osaka. The other four teams were from Arno, Roda, Wilder and Stonega.

Nine prizes were awarded in the last contest of the day, in which the full teams took part. Two problems were given. Teams Nos. 5 and 15, Stonega and Exeter, tied for the state championship and will therefore jointly hold the championship cup offered by the Virginia Coal Operators' Association. Both teams scored 100 points. The first prize went to Team No. 15, Exeter plant, by draw; second, Team No. 5, Stonega plant; third, Team No. 12, Arno plant, with a score of 99; fourth, Team No. 2, Roda plant, with a score of 98; fifth, Team No. 13, Dorchester plant, with a score of 98; sixth, Team No. 4, Norton Coal Co., with a score of 98; seventh, Team No. 11, Cranes Nest, with a score of 97½; eighth, Team No. 9, Wilder plant, with a score of 97; ninth, Team No. 8, Glamorgan plant, with a score of 96½. The teams from Roda, Dorchester and the Norton Coal Co. tied for the fourth prize, each making an average of 98 per cent., the prize being drawn for. Team No. 5, Stonega, was awarded the special prize of $50 in gold, donated by the Atlas Powder Co. and du Pont Powder Co. for the highest average in all events, making a total of 99⅜ per cent.

The Stonega Coal and Coke Co. was well represented at the meet, seven teams from as many different operations of the company being entered. The Clinchfield Coal Corporation entered three teams, while two teams represented the Wise Coal and Coke Company.

Playground Made in Record Time

The Kingston Coal Co., by clearing, equipping and dedicating a playground at Courtdale, near Wilkes-Barre, Penn., between sunrise and sunset, is believed to have established a record for the anthracite region. On a Friday evening General Manager F. E. Zerbey casually pointed out a vacant plot to a Councilman as a good site for a town hall. The Councilman said it would be better for a playground. "We'll equip it tomorrow, and dedicate it tomorrow night," said Mr. Zerbey.

By 7 o'clock Saturday morning workmen were on the ground, wagons hauled up half a dozen swings, material for sand pits, teeters, horizontal bars and rings, sliding boards and other playground paraphernalia. By 5 o'clock everything was finished, a flagpole had been erected and painted, and the flag was flying. Couriers notified the townsfolk of the dedication and got a drum corps into service, and the dedication was held at 7:45 that evening, when the coal company formally turned over the ground to the children of the town.

STATISTICS COMPILED by a large insurance company show that the recent influenza epidemic cost insurance companies $240,000,000 and resulted in the death of 450,000 persons. The figures given cover the autumn and early winter of 1918.

Artificial Gas and Byproducts in 1917

Sales of artificial gas in the United States in 1917 amounted to 342,151,129,000 cu.ft., according to a report compiled by C. E. Lesher, statistician of the U. S. Geological Survey. During the last few years byproduct coke-oven construction made great progress. This is evidenced by the substantial and regular increase in byproducts from such ovens during the years 1915, 1916 and 1917, as shown in the table. Thus the sales of gas from byproduct coke ovens increased 20 per cent. in 1917 over 1916, and 55 per cent. over 1915.

During the same period gas sold from coal-gas plants decreased in quantity; the sales of oil gas increased only slightly. The total coal gas produced in 1917—sold as well as lost or used by producers—amounted to 47,525,148,000 cu.ft., the manufacture of which consumed 4,960,297 tons (net) of bituminous coal, 106,627 gal. of oil, and 1296 tons (net) of cannel coal; the oil and cannel coal being used as enrichers. The total water gas produced—174,357,536,000 cu.ft.—required the use of 1,486,305 tons (gross) of anthracite, 7815 tons (net) of bituminous coal, 1,448,173 tons (net) of coke (most of it produced by the same operators in coal-gas retorts) and 684,620,637 gal. of gas oil. The quantity of bituminous coal charged into byproduct coke ovens was 31,505,759 tons (net), which produced 337,728,251,000 cu.ft. of gas.

The sales of coke from coal-gas plants in 1917 showed an increase of 12 per cent. in quantity and of 52 per cent. in value over 1915. The sales of byproduct coke in 1917 showed an increase over 1915 of 59 per cent. in quantity and of 186 per cent. in value. The sales of tar from all the types of plants noted in the year 1917 increased 41 per cent. in quantity and 38 per cent. in value over sales in 1915. The ammonia produced in various forms has been computed as its equivalent in sulphate for convenience in comparison. Coal-gas ammonia showed a decrease in 1917 under the production of 1915 in quantity and a small increase in value for the same two years, respectively, whereas byproduct coke oven ammonia showed a large increase in both quantity and value for 1917 as against 1915.

A striking situation is shown in the case of light oils, evidencing the extent to which this industry was stimulated by the wartime demand for the raw materials required for high explosives. The sales of light oils in 1917 showed an increase of 245 per cent. in quantity and 315 per cent. in value over 1915. The much larger portion of such oils came from byproduct coke ovens. As regards naphthalene, a phenomenal increase both in quantity and value of production was made in 1917 over 1915 from byproduct coke ovens.

ARTIFICIAL GAS AND BYPRODUCTS MARKETED IN 1915, 1916 AND 1917

Product	1915 Quantity Sold	1915 Value of Sales	1916 Quantity Sold	1916 Value of Sales	1917 Quantity Sold	1917 Value of Sales
Gas (M. cu.ft.):						
Coal gas	43,747,432	$40,257,108	.....	.....	42,927,728	.....
Water gas	124,129,569	112,281,956	.....	.....	153,457,318	.....
Oil gas	13,971,333	12,668,169	.....	.....	14,739,508	.....
Byproduct gas	84,355,914	8,624,899	110,061,607	$10,779,208	131,026,575	.....
	266,204,248	173,832,132	.....	.....	342,151,129	.....
Coke (net tons):						
Coal gas	1,662,552	7,198,377	.....	.....	1,857,248	$10,953,693
Byproduct	14,072,895	48,558,325	19,069,361	75,373,070	22,439,280	138,643,153
	15,735,447	55,756,702	.....	.....	24,296,528	149,596,846
Tar (gal.):						
Coal gas	47,863,192	1,555,363	.....	.....	53,318,413	1,774,326
Water gas	51,381,911	1,118,656	.....	.....	59,533,208	1,258,683
Oil gas	64,433	4,268	.....	.....	727,556	32,682
Byproduct	138,414,601	3,568,384	185,506,024	4,865,921	221,999,264	5,566,302
	237,724,137	6,246,671	.....	.....	335,578,441	8,631,993
Ammonia sulphate or equivalent (lb.):						
Coal gas	103,842,035	1,329,651	.....	.....	91,540,590	1,362,125
Byproduct	394,256,000	9,867,475	470,530,547	14,152,243	560,792,322	17,903,864
	498,098,035	11,197,126	.....	.....	652,332,912	19,265,989
Light oils (gal.):						
Coal gas	526,651	39,004	.....	.....	770,298	448,855
Water gas	788,876	59,840	.....	.....	6,420,717	1,655,204
Oil gas	.....	.....	.....	.....	205,475	74,035
Byproduct	16,600,857	7,337,371	43,714,429	30,003,360	54,427,266	28,655,204
	17,916,384	7,436,215	.....	.....	61,823,756	30,883,298
Crude naphthalene (lb.):						
Coal gas	222,925	3,565	.....	.....	383,349	9,584
Water gas	.....	.....	.....	.....	16,548	103
Byproduct	465,865	46,959	8,820,405	289,688	17,276,044	569,449
	688,790	50,524	.....	.....	17,675,941	579,136

PRODUCTION OF ARTIFICIAL GAS AND FUELS CONSUMED IN ITS MANUFACTURE

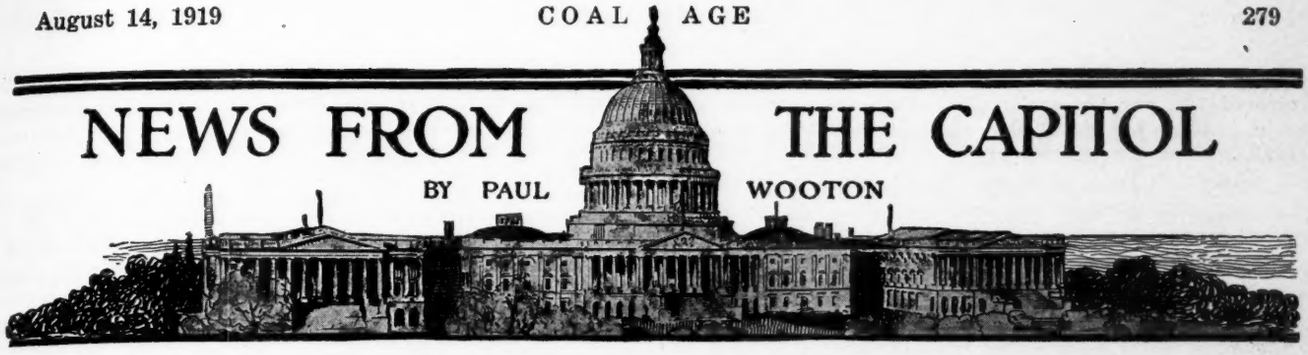
Fuel	Coal Gas	Water Gas	Oil Gas	Byproduct Gas
Anthracite (gross tons)	.....	1,486,305	.....	.....
Bituminous (net tons)	4,960,297	7,815	.....	31,505,759
Coke (net tons)	.....	1,448,173	.....	.....
Oil (gal.)	*a* 106,627	684,620,637	137,484,874	.....
Cannel (net tons)	*a* 1,296	.....	.....	.....
Product (M cu.ft.)	47,525,148	174,357,536	17,552,855	337,728,251

a Used as enricher

THE STATE DEPARTMENT has relaxed the restrictions that have surrounded the issuance of passports to European countries, except enemy countries and Russia.

NEWS FROM THE CAPITOL

BY PAUL WOOTON



Résumé of the Anthracite Situation

Despite the increasing pressure being brought for a congressional investigation of the coal industry, as a part of the efforts to reduce the cost of living, it is understood that Republican leaders in the Senate believe the situation can not be improved by an inquiry at this time. The matter was gone into exhaustively at a private conference at the home of one of the senators, it is understood. The senators seem to be impressed with the evidence, laid before them informally, which purports to show that current prices of both anthracite and bituminous are justified. No attempt has been made to justify Pocahontas prices, but all understand that that is an international matter.

There are, however, in addition to Representative Huddleston, several members of Congress who insist that no satisfactory answer has been given to their question as to why prices go up with the mines working at half time.

Control of distribution, as advocated by the President, is thought here to reflect Dr. Garfield's conclusion that the country must adopt Federal supervision of the distribution of necessities. Among the documents which have been submitted to the Republican leaders studying the coal situation is the following résumé of the anthracite situation:

When the Coal Production Committee under the Council of National Defense undertook in June and July, 1917, to modify prices no changes were made in the then existing prices on anthracite. These prices had not risen abnormally as the result of the wild demand of the preceding winter. Therefore, there was no good reason why they should be reduced. This opinion by Mr. Peabody's committee was concurred in by the Federal Trade Commission.

When, in August, 1917, the Federal Trade Commission recommended its schedule of permissible coal prices to the President, it made sweeping reductions in bituminous, but suggested no change in anthracite prices.

It was not until the miners were granted a further wage increase as of Nov. 1, 1917, that any modification in anthracite price was made. This advance allowed on the prepared sizes was more than the advance to the miners, being in recognition of the fact that the prepared sizes always carry the losses sustained by the sale of the smaller or steam sizes. Therefore, the price advance on the prepared sizes had to carry the full burden of the increased wage given to the miners.

The United States Fuel Administration, which was then in control of price policies in coal, also recommended that the independent anthracite operators—those grouped in the Anthracite Coal Operators' Association—should be allowed to charge 75c. per ton more for the prepared sizes than the railroad coal companies were allowed to charge. This was on the theory, then expressed, that it cost the independents more to produce coal than it did the railroad coal companies. Since all mines were needed, some could not be sacrificed for lack of proper revenue.

These were the only adjustments made in the anthracite prices. The Engineers' Board of the United States Fuel Administration took over, early in 1918, the cost-accounting work done theretofore by the Federal Trade Commission. It made careful and detailed study of the cost of producing all anthracite coal. It obtained complete data from all of the companies. It made a calculation to determine the "bulk line" in anthracite, the same as it had in each bituminous district. It submitted its report and findings in due time to Dr. Garfield.

This report is understood to have shown that 100 per cent. of the mines in the anthracite field were necessary to supply the urgent demand. Under the consistent practice of the Engineers' Board, this should have meant that the approved cost returned by the highest cost mine in the anthracite field would have fixed the price for the field.

However, the basis which was being used consistently in fixing prices in the bituminous field was not employed, for some reason, in the anthracite field. The reason why Dr. Garfield changed his policy upon receipt of this report and why this report was never made public is not known.

However, R. V. Norris, one of the members of the Engineers' Board, read a paper last winter before the American Institute of Mining Engineers. In it he showed that many of the anthracite companies had been operating steadily at a loss under the United States Fuel Administration's prices. The figures upon which his statement rested were representative of the industry before the last increase in wages—that of the late fall of 1918—was granted the anthracite miners.

Anthracite Miners Receive Wage Increase

With the fact of that loss known in the office of the United States Fuel Administration, the anthracite miners were, late in the fall of 1918, granted an increase in wages because it was said their earnings were out of line with those of the bituminous miners.

Although many of the anthracite operators were losing money before this increase, and although it was estimated that this concession would mean an increased cost of producing the prepared sizes of $1.05 a ton, no covering increase in anthracite prices was allowed.

It was not until three months later and when about to relinquish control of all coal prices, that Dr. Garfield made an admission that anthracite should be advanced in price. According to Mr. Norris, many of the anthracite companies were losing money before the last increase in the wages of miners

According to the estimates of the United States Fuel Administration officials and others, the cost of the last anthracite wage increase should add $1.05 a ton to the price of the prepared sizes. According to Dr. Garfield's statement of Feb. 1, 1919, the resultant plight of the anthracite operators should have been relieved, in February, by an increase in price of at least 50c. a ton. That is the situation under which the anthracite trade emerged from price control by the United States Fuel Administration.

In April, 1919, the railroad coal companies in the anthracite field announced their "circular" prices for that month. They were the same as the last prices named by the President, namely:

	Per Ton F.o.b. Mines
Egg	$5.85
Stove	6.10
Chestnut	6.20
Pea	4.80

Beginning with May 1, 1919, these prices were all increased 10c. per ton per month. Thus the August, 1919, price is 40c. a ton higher than the price announced in April, 1919, making the present prices at the mines as follows:

	Per Ton F.o.b. Mines
Egg	$6.25
Stove	6.40
Chestnut	6.60
Pea	5.20

The independents did not adopt any uniform policy with respect to their prices when no longer under regulation. A part of them immediately met the competition of the railroad coal companies and waived their differential of 75c. a ton. They continued in this course for four or five months, regardless of the fact that they were losing money at the rate of from 75c. to $1.25 a ton. When, within the last two months, the buying again became keen, these companies decided to recover their losses by charging as large premiums as they could get. At first, they charged a premium of 50c.; then 75c.; later $1; and now in some instances, they are getting premiums of $1.50 per ton.

Other independent operators continued to charge 75c. a ton more than was charged by the railroad coal companies. That is still their policy.

Even so, they are now losing more money than they did under the Fuel Administration prices. That is, on the prepared sizes they are getting the last price named by Dr. Garfield plus the 40c. a ton which they have added since the first of May. But, while the prices on prepared sizes have advanced they are not able to sell their steam sizes for as much as was obtained for them under the Fuel Administration. The following table will show the decline:

Size	Garfield Company Price	Garfield Independent Price	Present Price
No. 1 Buckwheat	$3.40	$4.15	$3.15@3.25
No. 2 Buckwheat	2.40	3.15	1.75@2.00
No. 3 Buckwheat	2.40	3.15	1.40@1.50

To sum up the price situation in anthracite: If the report of the Engineers' Board of the Fuel Administration had been used as the basis of prices in anthracite, as it was in bituminous, anthracite coal would have been much higher priced during the war.

If the increase given to the miners in the fall of 1918 had been followed by a covering increase in the prepared sizes of anthracite, the price would have gone up at least $1 a ton. Or if, in lieu of that, Dr. Garfield had followed his own inclination as of Feb. 1, the price of anthracite would have been increased at least 50c. a ton in February, 1919.

None of these things occurred. Instead, the anthracite operators postponed making any advance at all until May 1. Then they added only 10c. a ton. They followed this by other increases of 10c. a ton in June, July and August, making the total advance to date 40c. a ton. Thus the anthracite operators, as a whole, have taken seven months to do what Dr. Garfield said should have been done in February.

As the report of the Engineers' Board indicates, the prices charged even now do not meet the last advance in the wages of the miners given nine months ago. This indicates that the entire anthracite industry is still losing money. This loss is increased by the fact that the anthracite operators are selling their steam sizes for less than they did formerly.

To arrive at the selling price of anthracite in the various markets, it is only necessary to add the mine price, the freight rate and the gross margin of the retailer. This, in the major eastern cities, gives this result—using stove coal as a basis:

City	Mine Price	Freight Rate	Retail Margin	Delivered Price
New York	$6.50	$2.68	$2.50	$11.68
Boston	6.50	3.29	2.25	12.04
Philadelphia*	6.50	2.06	2.50	11.06
Baltimore*	6.50	2.68	2.60	11.78
Washington*	6.50	2.68	2.75	11.93
Buffalo	6.50	2.68	2.55	11.73

* Gross tons.

To explain certain prices above these which are occasionally quoted, there must be added: (1) The premium charged by independent operators. (2) Any unusual charges for railway service. (3) Any charges for carrying coal from the curb to the bin.

The total cost of mining anthracite of the independent anthracite operators for April, 1919—not including selling expenses or overhead charges such as interest on investment, income or excess profit taxes or charges for improvement—was $5.309 per ton. The average realization—the money which the miners obtained for all of this coal at the mine—was $5.02 per ton. The average loss to the operator, therefore, was 28.9c. per ton.

Sufficient Coal If Transportation and Labor Do Not Hinder Output

Coal is coming in for much scrutiny in the frenzied efforts being made by officials in Washington to gain information having a bearing on the high cost of living. The best estimates place the country's fuel needs for 1919 at approximately 500,000,000 tons. For the first seven months of the current year, production totals 250,500,000 tons. While that figure is somewhat lower than it would be in a normal year, in which 500,000,000 tons would be produced, production usually speeds up during the latter five months of the year, and it is admitted that it will be comparatively easy to end the year with a full 500,000,000-ton production, provided labor and transportation difficulties do not hamper production to an unexpected extent. The curve of production already is pointing encouragingly upward, and the tendency among coal specialists here is to look at the situation optimistically.

With the realization that transportation plays a very important part in the coal situation, the Senate has passed a resolution by Senator Pomerene of Ohio, calling on the Railroad Administration for the following information:

"First. Give the total number of coal cars now in use in the transportation of coal and the number of empty coal cars belonging to the several railroad companies under the control of the Director General of Railroads which are suitable and available for the transportation of coal.

"Second. State whether the coal cars belonging to the railroads and under said control are now sufficient or have been during the past six months to meet the demand therefor.

"Third. State the number of coal cars which have been constructed or purchased for the account of the Director General of Railroads which are under his control and which have not been sold or transferred to the several railroad companies, and, if they have not been sold or transferred to the several railroad companies, give the reasons therefor.

"Fourth. State fully the methods adopted by the Director General for the purpose of supplying the producers of coal with the necessary cars for transportation of coal to the consumers.

"Fifth. State what, if any, further action by Congress is required in order to meet the demands for the transportation of coal."

IT WAS RECENTLY announced by the Treasury Department that a new credit of $157,549,000 was established for France, making a total of $3,010,026,800 advanced to that country. The total United States loan to all the allies is now $9,615,400,927.

COAL AGE

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Fitting Industry with a Flywheel Fund

THERE is an old story—so old that it is almost a legend—that there once lived a man who had a leaky roof on his house. He and his wife used to keep an old door under the bed so that they could get it out quickly and hold it over themselves whenever the downpour within the house became unbearable. When his neighbors asked him why he didn't repair the roof, he replied that "When it rained the weather was too bad for him to go out and drive nails, and when it didn't rain the roof didn't leak." Modern industry works upon a somewhat similar principle.

In the spring of this year a manager declared that he wished he had put in a large order for machinery during the war because since the armistice the company could be induced to buy nothing. He knew that if he had ordered the machines during the conflict he would not have received them, but, at least, they would have been ordered and they might possibly have been delivered after the armistice and before the president of the company countermanded the order. He was greatly in need of them both before and after the conclusion of the war; but, the war once ended, the company would order nothing. Neither low price, quick delivery, the patriotic duty of buying nor the advantage of preparedness would move it to grant permission.

In the war period, when profits were good, the operators, many of them, schemed all manner of plans of welfare work and mine improvement but were compelled to abandon them by reason of the lack of men to put the plans in operation and because of the difficulty in getting material. They deliberately laid aside these plans hoping for a better time later. It would have been preferable to have made appropriations at that time to cover these plans, so that the management as part of its set policy could expend the money when times became less brisk.

The trouble with the public is that it is fiercely anxious to do its work just when every activity is at its height and nothing can be obtained. It stampedes at that time, and yet the moment that business falls off it will buy nothing. The country is in sore need of companies which will not engage in the scramble for men and materials at the busy season but will establish Flywheel Welfare or Improvement Funds to be expended when times begin to slacken and when they have a lot of men idle.

Nothing will do more than this to carry the nation over its deplorable dead centers and keep it going with as nearly even a torque as is afforded by an eight-cylinder motion. A company that will establish such a fund and expend it with due discretion will strengthen its hold on its men, make them more happy and prosperous, save quite a little money and do much to keep the industries of the nation moving steadily. A few years from now our whipsawing way of working ourselves into a frenzy for some months and then resting for some months will seem childish and wasteful of human energy.

Welfare expenditure is quite usually charged to regular mine expense and not to a special account. It goes into the current cost of coal, which is wrong. When a mine is working at full tilt, for lack of men, no improvements are made. Yet there is abundant production to carry the charge. When the mine is working slack the improvements cannot be made because of the small volume of tonnage against which to charge the cost. As a result the work is quite frequently abandoned.

When a man seeks to quadruple his wages above prewar levels and at the same time to multiply his privileges so that his labor becomes costly in an indirect, as well as in a direct, way, how can he find any fault with the cost of living which is now far less than four times as great as before the war?

Putting Welfare Into the Mine Office

OFTEN the last man to receive that consideration which is now being given all mine workers is the mine clerk. The mine office, that busy ganglion of the whole nervous system of the colliery, is frequently the least regarded institution in the mining village. The mine clerk sometimes works from early dawn till late at night in surroundings that are far from pleasant and has to dress in habilaments that show that he expects at times to bill railroad cars, crawl over the top of them and wade through seas of mud.

Sometimes his official supervisor wonders that the clerk allows himself to be surly to those who call to find fault with their semi-monthly statements, but no one can be surprised that the clerk's long hours and harassing duties at times embitter him and prevent him from being that embodiment of good will which all critics of mining conditions call on him to be.

It is common to say that about half the trouble around many camps comes from the clerk's discourteous treatment of the mine worker. There is truth enough to justify that statement, but what has been done to give the mine clerk a chance to show such an exuberance of good will as is expected of him? What care has been taken to indoctrinate him in the peacemaker's art? On the contrary the lack of attention that is shown him induces him to show the same scant attention to other people.

Any man whose welfare is overlooked will overlook the welfare of others. The man who is lightly regarded will lightly regard other men. He takes his cue from the boss and his surroundings, and what kind of a cue can he hope to get from a discourteous superintendent or from an office covered with mud, with unwashed windows and dusty shelves, a room into which everything is brought to be unpacked or stored or where mine clothes are hung up and miscellaneous rubbish dumped into the corner?

It is impossible to keep many of these offices clean, for the building is surrounded by mud and dust. Every stranger tracks in a part of the soil of the village, the visitors strew carbide, lime and oil on the floor, and oftentimes water on the desks. On dry days the dust enters in volumes through open windows, and though there is plenty of electricity available, an office fan is not installed.

In some offices women clerks are employed, and the

change is certainly for the better. No one expects from these the late hours which have been too often the portion of the mine clerk. Every one realizes that there should be a degree of cleanliness and order. But better yet, women above all others can explain the deductions made on statements, quietly and pleasantly. If such explanations do not leave the workman in a quiet strain of mind, the male clerk can then take his place at the window.

In some offices the bookkeeping force has the very poorest of equipment. Adding machines, card indexes, pencil sharpeners and other like aids are unknown. In the larger companies payrolls should be photostated and not copied. Give a thought to the mine clerk; it will certainly pay to do so.

There are many up-to-date offices; sometimes one sees them where the mining camps are far from perfect and where welfare is not considered at all. Some little mine offices are like pretty houses, with vines and trellises. Other mine offices are brick buildings with modern furniture and equipment, clean, bright, cheerful places to work in.

Why cannot all mine offices conform to one of these two patterns? and could not it be arranged that the mine clerk restrict himself largely to purely office duties? Then perhaps he will find a way to hang up his hat when he enters the office, wear house clothes instead of overalls and in general dress the part of an office worker. Perhaps also he will keep the office as neat as his books and make his language to the men at the pay window conform to the general well being.

The miner who is willing to work a full turn is entitled to have an attempt made to supply him with all the cars he can use during the working hours; and he should have them, unless the union purposely and viciously restricts the number of his cars to the number the most listless man on the job is willing to load.

Good Roads in Mining Towns

IT IS by no means an infrequent experience to leave dusty, rutty or muddy roads behind on entering a mining town, for the streets in such villages are quite usually private property and being such are under the care of the superintendent of the mine who is usually a traveled man, the owner of one or more motor cars, and an engineer. He is therefore more likely to know how to maintain roads than the road supervisors of a county, who are quite usually men who have made farming an unsuccessful experiment and now try roadmaking because it pays a sure though small return.

The mine superintendent, moreover, employs men at current wages and not at wages below the market rate, nor does he have to take men on such days only as they are willing to spare for that work, whereas the road supervisor often has to accept farmers to work out their poll or road taxes at such times as suit them. As the roadworkers on country roads elect their employers, the class of work they do, unless they are put on the highway which leads through their farms or from their farms to the railroad station, post office or store, is not apt to be of the most energetic character.

But there are larger causes for the comparative excellence of the roads around the mine village. If the grades are bad there is always rock for a fill easily available. If there is a sink hole or a spring bog to be crossed plenty of sandstone rocks can be found to prevent vehicles being bemired at such places. Tons of ashes and of bone coal, both excellent road materials can be obtained at mines without cost and with only a short haul.

Hence, if the roads in a mine village are bad there is little excuse for it, and it is a sign that the wrong man is in charge of the mine. A mine road should be reasonably free of mud or dust at all times, not only in order to make hauling practical, easy and cheap, but also because no villagers can be clean themselves or have a clean house when, to cross the road, they have to wade through a mud morass. Yet such roads are sometimes to be found in mining towns. Even when the fowls cross such roads they fly high to escape the inevitable wetting the crossing on foot of such wagonways involves in the wet season.

But on the whole the road at the mines gets more intelligent treatment than the country roads and, being in the hands of a better supervisor it is often better than a state road, the work on which is directed by an absentee. The work is done by men better in hand, at times which suit the supervisor and in places that please him. The ballasting is done with better material. These things being so the finished road is well suited for motor or truck delivery.

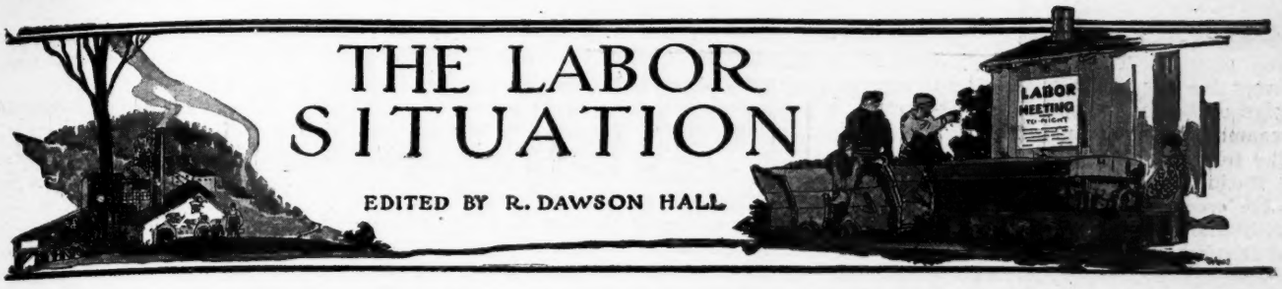
In the United States alone some twenty millions of tons of coal are delivered to the point of consumption without the intervention of the railroad car. This is a prodigious quantity of material and much saving in its transportation would be effected if the motor truck were in general use. There are many other materials besides coal to be transported around the mines and all can be better handled by motor truck than by a mule- or horse-drawn wagon.

One mine intensively worked is worth a dozen spread over a large territory. Some men take pride in the extent of their workings and others in the skill with which they make one or two produce all the output for which they have market.

Who Are the Profiteers?

THE PUBLIC readily groups under the common appellation of "Profiteer" the active and passive recipients of benefits from the public need. The active type consists of those who combine to raise prices; the passive type, of those who are importuned to sell and so name a large figure for their product or are actually offered an exorbitant figure and accept it.

However, the public discriminates somewhat strongly between those who merely quietly combine and those who, like the mine workers and railroad men, combine with bluster and often with violence, who threaten to close business, their own and other, and who prophesy a revolution. The latter, whom the man from Mars would call the more criminal, are, in common thought, very respectable people. It will, however, be impossible for us to call them other than ultra-active profiteers whenever, of course, they seek excessive reward. Thus we have three classes, the ultra-active, the active and the passive profit takers. Strange to say, of late, the ultra-active profiteers have been giving the more passive class the hardest of hard names.



THE LABOR SITUATION

EDITED BY R. DAWSON HALL

General Labor Review

A peaceful outcome of the election dispute, mentioned last week, is quite likely now that Judge E. C. Newcomb of the Lackawanna County court is to preside over the counting of the ballots. When injunction proceedings were started by the insurgents, whose candidates were declared defeated, Judge Newcomb, who was asked to provide the injunction, which would restrain the officers of the union from exercising their functions, suggested that a recount be made under his supervision. This satisfied the contending parties and a recount started on Wednesday, Aug. 6, the results of which are not yet known. Enoch Williams of Taylor hopes to be president, George Isaacs to be vice president and William Brennan, international board member, if the judge finds that the insurgents have been defrauded of their rights. There are 147 locals in the district and the vote of 20,000 men has been registered, so the inspection of the ballots is no small job. The Locust Gap mine has returned to work. In last week's issue it was explained that its 1000 men had gone on strike to compel six men who were loading their own coal to desist from that practice. The strike was concluded on Aug. 1, it being agreed that the six men should remain idle till the grievance was adjusted.

The miners of sub-district No. 1, of district No. 7, of the United Mine Workers of America assembled in convention at Mauch Chunk on Aug. 6 and adopted a resolution to compel coal companies to pay employees on the 15th day and the last day of each month; asking the coal companies to keep their explosives in 25-lb. instead of 50-lb. boxes, alleging that the latter boxes were too heavy to carry; asking for a complete check-off system; a 50 per cent. increase in wages; an eight-hour day for all fan-, compressor- and pumpmen; a special rate of wages for all men fighting fire in the mines and a uniform rate of wages on all contract mining. They demanded also that all men using powder be paid miners' wages and that the Government appoint a commission to reduce the high cost of living. They placed the length of the working day at six hours, with time and one-half for overtime and double time for Sunday work and demanded an agreement with the operators not to extend over two years. The anthracite men apparently ask more than those in Indiana.

In our issue of July 17, an account was given (p. 125) of a severe explosion at No. 4 mine of the Lehigh Coal & Navigation Co. The cause of the explosion is not known. The officials of the United Mine Workers have been trying to find out if there is any way by which a recurrence of such accidents may be avoided, the whole question of the ventilation of the mines in the Panther Creek region being under discussion. The higher officials of the union have conferred with the local officials of the company. The inquest was put off by Coroner Ira Freyman, so that some of the still-living victims of the recent disaster might attend.

The strike at the mine of the Potter Coal and Coke Co., at Coral, Indiana County, central Pennsylvania, is to be aided by the loan of 50 tents to be shipped from Colorado. They were used by the mine workers at Ludlow during the southern Colorado strike. It will be remembered that the mine workers with other working men were asked to strike for five days each month so as to compel the release of Thomas Mooney, an Industrial Worker of the World who has been incarcerated in California as being guilty of having caused a violent explosion among the spectators of a procession in San Francisco. At few of the mines throughout the country, as far as can be learned, were men found so foolish as to strike on behalf of Thomas Mooney. The Fort Pitt mine, Bellaire, Belmont County, Ohio, a mine of the Central Coal Co., with some mines in the Belleville district of Illinois, was one of the notable exceptions. When the time came to go back to work the small radical element which adhered to the Industrial Workers of the World had decided that there would be no more work at Fort Pitt mine for a while. Some of the men were not of that mind but they were intimidated into staying away from work.

> THE policy committee of the United Mine Workers, it was reported Aug. 8, had prepared recommendations to be presented to the convention of the union at Cleveland in September. Among these is one for the nationalization and so-called democratization of the industry. The committee reports as follows: "We concur in the recommendation of President Hayes and declare for the nationalization and democratic management of all coal mines in the United States. We recommend that the three resident international officials be empowered to draft or have drafted for presentation to the international convention when convened a tentative draft of a bill to be presented to congress and providing for nationalization of all coal mines."

On Aug. 5, Sheriff John W. Osborne, of Belmont County, swore in a score or more of deputies and armed them with riot guns. He stationed 15 deputies at the mine mouth and ordered them to shoot to kill, in the event of any serious outbreaks. The mine employs about 400 men, a large majority of whom are foreigners. Some of them made up their minds that as they were striking for Thomas, they might as well strike for their own interest—higher wages and a six-hour day.

About 250 men seemed to favor this combination of large pay and smaller service or were little disposed to disagree with the radical leaders, who numbered about 15. Strange indeed it must have seemed to some of them that 150 men preferred to keep a long-standing union promise, which put them under an obligation not to strike or seek a new agreement till the President signified that the war was over. But these men sought to go back to work nevertheless and the vigorous action of Sheriff Osborne made it possible. Let not this trouble be charged to the United Mine Workers. That body did its utmost to enforce the terms of the contract on the striking men. A lot of the men are now working, though many of the strikers have refused to do so.

On the evening of July 25, the men at the Webb mine, at Shadyside, just south of Bellaire and on the banks of the Ohio River, Belmont County, Ohio, the largest mine in the county, employing 600 men, decided to go on strike, claiming that the scales did not register the true weight. Two weeks ago the men quit work because a number of men

claimed their pay was short. On that occasion the difficulty was settled. Then Saturday, July 19, a terrible storm swept the Wegee Valley killing 9 persons and putting the mine out of commission. On Thursday, July 24, the mine resumed, being again in shape to work, but on the Saturday following the mine was laid idle by the strike.

Ratification of the recent New River contract between mine workers and operators was, up to Aug. 8, meeting with stormy opposition at the mine workers' convention of District No. 29, called at Beckley, W. Va. The difficulty seems to lie in the fact that no increase in wages was provided by the contract. In fact, it was intimated that the new agreement made a slight reduction in the scale at several mines.

The mine workers also appear to be objecting to the provision of the new agreement making eight hours' work in the mines mandatory and also to the provision under which strikes are prohibited until grievances have been submitted to a board of arbitration. While it is believed that the miners will ratify the new contract when they once understand it, yet the prospects were on Aug. 8 that the convention would not reach a decision until the present week.

The biggest wage increase ever announced in the Pocahontas field became effective on Aug. 1. Men at some of the operations received little slips telling them of their good fortune, and at one place only was a notice of the increase publicly posted, but neighboring operators requested that these be taken down, the desire seeming to be to notify the men personally.

The wages as increased are said to exceed the wages now paid in any of the competitive fields, being 30c. higher, according to reports, than the union scale in other sections of the state.

Pocahontas Gets an Eight-Hour Day

Furthermore, the eight-hour day has been adopted in the Pocahontas fields. It went into effect on Friday, Aug. 1. It was reported that some of the operators in southern West Virginia were contemplating a 44-hour week in addition to meeting the wage increases announced by the Pocahontas operators.

The action taken was voluntary, but many believe it was taken to forestall the attempts of the United Mine Workers to unionize the field. It is stated that the new rate of wages now obtaining in the Pocahontas coal fields is higher than the wages paid in any field east of the Rocky Mountains, and that it will insure, its promoters hope, an adequate labor supply to the region. It is also stated that it will add about 32c. per ton to the coal cost.

Operators of the Tug River field, who have their association headquarters in Bluefield, were in session Saturday afternoon, Aug. 1, discussing the situation and making preparations to announce a like increase to adjust their wage scale to meet that of the Pocahontas field. The agreement was finally made and the miners in the Tug River field will get a like increase to those in the Pocahontas.

It is said that the change in scale was made so as to offset the increased cost of living and that the additional pay is a scientific adjustment to meet this increase. The decrease in hours will not affect the miners as a class, for they rarely work in the Pocahontas district, or in any other region of the United States, for a full eight hours, but quit when they please. Only a few now work as many as eight hours a day.

Although the mine workers and operators of the New River field in District 29, United Mine Workers, have agreed on a new wage contract to become effective on Sept. 1, subject to ratification by the operators and miners of the New River field, the mine workers of District 17, embracing both the Kanawha and the northern West Virginia field, have so far taken no steps toward formulating their demands for a new scale to replace the one now in force. It will not expire until Mar. 31, 1920, and the mine workers will not determine on what they will ask till they hold their convention at Charleston in September. At that time members of the scale committee of District 17 will be named by the delegates to the convention and the sense of the delegates sounded as to what wages should be paid and as to the general provisions of the new contract.

After the demands of the scale committee are formulated and presented to the operators of the territory embraced in District 17, it is expected that counter proposals will be made by them and that from the proposals and counter proposals a new agreement will be evolved.

Failure to recognize their status as members of the United Mine Workers led about 150 miners employed by four different companies at Adrian in the heart of the Upshur County field on the Coal & Coke Ry. to go on strike on Monday, July 28, but the strike was of short duration as to three of the four companies, the miners returning to work after being out a day or so. The companies at whose plants the miners walked out were the W. H. Greene Coal Co., the Veneer Coal Co., the Baker Coal Co. and the Masontown Coal Co. Miners employed at the Buckhannon River Coal & Coke Co. at Adrian went on strike recently for a similar cause, but with the recognition of the union the miners at that time returned to work.

Adrian, W. Va., Field Returns to Work

President Keeney returned to Charleston from Adrian on Aug. 4, having been in conference with operators at Buckhannon and Adrian in connection with a new contract which was drawn up and signed. As the result of the strike referred to, Keeney was recalled to Adrian, where most of the operating companies agreed to sign the wage contract. Several hundred mine workers were affected by the agreement, all of them returning to work with the exception of those at one mine, the owners of which had refused to sign an agreement.

Another section of the United States where interest was shown in, and support extended to, Thomas Mooney was the turbulent Belleville district across the river from St. Louis, Mo., and therefore, of course, in Illinois. On July 5, mine workers to the number of about 3000 went on strike to compel the state of California to release Tom Mooney. They were fined, as the terms of their contract required, $3 for the day they were idle.

On Aug. 1, they went on strike to recover the $3 and, just as at the Fort Pitt mine in Belmont, they combined their demands anent the Mooney matter with the demand for a new wage scale. They contended that the end of the Fuel Administration marked the end of the contract because the body which promulgated the contract had come to an end, because prices were freed and because the war which made restriction necessary had been brought to a conclusion, as was clearly exhibited by the termination of the work of the Administration.

Fuel Administration Still Doing Business

But the mine workers err, for the Administration is not at an end. The Lever Act provides for its continuance till the end of the war. It may resume its functions actively at any time and become as vigorous as ever, and it intends even now to keep wages at the level it has established.

Twelve hundred mine workers of the Southern Coal and Mining Co., and between 500 and 600 of the St. Louis and O'Fallon Coal Co. are among those on strike. The only mine in the Belleville district unaffected is the Avery mine.

In all there are 48 locals in the strike including those of the Orient mine in West Frankfort and of the mines of Nokomis, Centralia, Breese, Beckemeyer, Troy, Marissa, New Athens, Coulterville and Sparta. These towns are scattered, one being in Franklin and others in Marion, Clinton, Madison, St. Clair, Montgomery and Randolph Counties.

Approximately 1500 miners have been idle in Franklin County, Illinois, as a result of a walkout of men from the mines Nos. 10, 11 and 12 of the Old Ben Coal Corporation at Christopher. The main objection is the "bug," or closed, lights which the company has required the men to use. Two fatal explosions in the last year or so in which 21 men were killed are largely responsible for the strike. Both explosions were said to be caused by sparks from the trolley wheel, and the men maintain that as long as the mine is electrically equipped, the "bug" lights are a detriment rather than a safeguard.

DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

Lawful Examination of a Mine

Letter No. 2—I want to offer a few comments on the letter of Steve Gosnell, *Coal Age*, July 3, p. 18, who very properly criticizes the Illinois State mining law, in its relation to the examination of a mine by the mine examiner (fireboss).

For the sake of safety, it is not sufficient for the mine examiner to comply merely with the wording of the law. It is the duty of that official to locate any dangerous conditions that may exist in the mine or section of the mine in his charge. If, as has been suggested by a previous writer, the mine examiner promptly removed any gas that he might find in a working place, and did not leave the work to be done later, I firmly believe that this would serve a double purpose: First, the gas would be removed at once and there would be no danger of men running into it because they are heedless or careless. Second, the work would be done when few men are at work in the mine.

In my experience the mine examiner may comply with the letter of the law and yet not perform his work in a manner that will insure safety. To my mind, what is necessary is for the state mine inspectors to prescribe rules and regulations for each particular mine or district, according to the conditions that he knows exist in such mines and districts.

For example, most of the mines, in the northern part of this state, are not troubled with gas to the same extent as the mines in the southern districts. There is not the same danger, therefore, in the former as in the latter mines; and the same urgent necessity may not exist for the mine examiner to visit each working place within three hours of the time when the men enter the mine for work.

Danger May Develop in a Brief Time

Experience proves that, in the gaseous mines of southern Illinois, a dangerous condition may develop in any working place, in a short time, and it is necessary that each place be examined carefully, within three hours of the commencement of each shift. For this reason, I believe it is important that the district mine inspectors make such rules and regulations as will apply in each case, and see that they are strictly enforced.

Now, referring to the Illinois statutes and the requirement (Sec. 21) that the mine examiners shall examine the underground workings of the mine, within eight hours immediately preceding the time the dayshift goes on duty each day that the mine is operated, let me say that it is my belief that all state laws should require every mine in the state to be examined by a certified mine examiner within three hours of the time the dayshift goes on duty.

I fully agree with the suggestion made by Robert A. Marshall, in his letter on "Firebosses as State Officials," page 31, of the issue to which I previously referred. Mr. Marshall advises that one set of mine examiners should be employed the entire eight hours of the nightshift, in examining the mine and removing the dangers found therein; and that another set of examiners should enter the mine when the dayshift goes to work and remain throughout the eight hours of that shift.

In the present system of firebossing, the time allotted for the examination of mines is far too short and the territory in charge of each examiner generally too large for him to examine and find out its condition and remove any dangers that may be present, or fence off such places so that no person will enter them unwarned.

Having a smaller number of men in his charge, each examiner would be able to perform his work more faithfully, and this suggestion regarding dayshift examiners would probably avoid the necessity of employing assistant managers (assistant foremen), who cannot be expected to have the same capability for examining a mine, as a mine examiner. GASTON F. LIBIEZ.

Peru, Ill.

Unpractical Examination Questions

Letter No. 1—It was with surprised amusement that I noticed in the issue of *Coal Age*, July 24, p. 165, a few examination questions that, from a practical standpoint can only be classed as "freaks." Such questions, certainly have no place in any properly conducted examination for coal-mining positions.

An examining board that would give them out should be made to publish what they consider the proper answers, at the close of each examination. Then, if the answers so published are not correct, or if they are of such a nature that they cannot be expected from the average intelligent candidate, the board should be removed to make way for persons who can conduct an examination with a little common sense and along practical lines conforming with mining practice of today.

The second question given on page 165 is a fair example of a foolish question. It can only be worked, I believe, by approximation and the result would be out of all reason in its practical application to mining conditions. For example, take an airway having the shape of a trapezoid, say 6 ft. wide on the top, 10 ft. wide on the bottom and 8 ft. high. As this airway is as high as its average width and has a practical shape for a mine passage, it gives about the maximum area for a given perimeter, which is, in this case, 64 sq.ft. to 32.48 ft. of perimeter.

We must now find a shape with the same perimeter and an area of two thirds of the 64 sq.ft., or 42.67 sq.ft., since on the face of the proposition it is impossible to increase the area to 96 sq.ft. and retain the perimeter of 32.48 ft.

After a number of trials, it is possible to arrive at a trapezoid 10.22 ft. wide on the top, 14.22 ft. wide on the bottom, and 3.49 ft. high, which has the required perimeter of 32.48 ft. and an area of 42.65 sq.ft. and is near enough. But, let me ask, Of what earthly use is the answer, now that we have it? Is it not time that examiners were required to give sane examination questions.

R. A. SMITH, Superintendent.
Kingston, Penn. The Kingston Coal Co.

Violations of Mining Laws

Letter No. 1—Referring to the letter of W. J. Heatherman, dealing with the subject of common violations of mining laws, *Coal Age*, June 26, p. 1159, no one doubts the truth of the statement he makes, namely, that many accidents occur as the result of the laws being violated in mines.

Few mining men however, will agree with the statement that "frequently mine foremen may be found who do not realize the gravity of their duties. They are content to go from place to place, begging a cigarette here and some carbide there." In my 10 years of experience as mine foreman, it has been my invariable custom to seek and obtain much information and advice from our state mine inspectors and, Mr. Heatherman is the first inspector whom I have known to underestimate the qualities and standards of mine foremen.

Of all others, the mine foreman is the chopping block of the mine, or the anvil of the mine law. He is the arbitrator between labor and capital; he it is that must stand the blows when the mining laws are violated by men in his charge. Under the high pressure that prevails in the mines, today, there is no time for a foreman to loiter in making his rounds of the mine. On his shoulders rests not only the responsibility for the safety of his men, but likewise, the burden of getting out the coal; and these duties cannot be compared with the conditions that existed 25 or 30 years ago, when the work in the mines was within a short radius of the shaft.

RESPONSIBILITY FOR ACCIDENTS RESTS ON THE FOREMAN

No one feels the burden of the responsibility for violations of the mining law more than does the foreman, and no one feels worse than he when an accident occurs by which a man is injured. This is shown by the way in which the foreman hastens to the scene of an accident and cares for the victim, after which he seeks to impress on his men how the accident might have been avoided, with more care and a better regard for the mine regulations and the mining laws.

A short time ago, E. C. Curtiss, inspector, ninth anthracite district, referred to the danger zone, at the working face in a mine, as being winthin a line drawn 15 or 20 ft. back from the coal face where the miner works. For this reason, he urges that extra precaution should be taken by the men when within this danger zone. Mr. Heatherman's idea of having a standard rule established, requiring each miner to set props in a systematic manner in his place, is a suggestion that every practical mining man will endorse.

Systematic timbering has produced good results in the mines of Great Britain where I was formerly employed. Some coal companies insist on a foreman or his assistant remaining in a miner's place until the posts he orders to be set are stood and the roof made secure. My idea is that the discipline, in every mine, should be such that this would not be necessary. The order once given should be sufficient and, if disobeyed, the man should be promptly punished for violating the same. The lack of discipline in mines is a direct cause of many accidents.

Reference is made by Mr. Heatherman to the average foreman closing his eyes to boys and men riding huddled between loaded coal cars. This may be true in exceptional cases; but the uptodate mine of today has traveling ways and manways that make these occurrences rare and punishable when detected by the foreman.

The suggestion that coal operators "assist in organizing a mine foremen's institute, to be held as often as is necessary to allow each mine foreman in the state to attend and hear qualified men lecture on the duties of a mine foreman," attracted my attention particularly; as I have been wondering if it was intended seriously. Do the mine foremen of West Virginia need to be instructed as to their duties? It occurs to me that they would be more apt to listen to a lecture on methods of increasing the tonnage and lowering the cost of production. It is safe to say that few superintendents or managers would place a foreman in charge who did not know his duties.

Let me say, in closing, that the mine foreman, having the miner on one hand and his employer on the other, must be a pretty level-headed gentleman to keep things running properly in the mine, today. The success of the operation depends on the good or bad judgment of the foreman in charge. It is his ability and skill that keeps the coal moving and the mine safe, and no one knows better than the foreman that this cannot be done where the mining laws and mine regulations are violated.

RICHARD BOWEN.
West Pittston, Penn.

Efficiency of Mine Workers

Letter No. 6—After reading the letter of "Equality," June 19, p. 1136, which contrasts conditions in the mines of Great Britain with those of this country, in reference to the suggestion of a 6-hr. day and a 5-day week, I am led to offer a few comments from my own experience in English mines where I worked before coming to this country.

At that time, in England, it was the custom for the diggers to be allowed 7½ hr. bank to bank, or from the time they descended the shaft until they reached the surface again. All daymen were allowed 8 hr. in the mine; and, in my opinion, that time was necessary in order for the average dayman to give a fair return to the operator for the wages paid him.

It is quite true that mining coal in Great Britain is much more arduous than in this country, owing to the deep mines and the low coal. It must be remembered, also, that all work had to be done with safety lamps, as naked lights were seldom used in those mines. Under these conditions, the ventilation of the working places was frequently poor and the conditions far less favorable for good work.

There is never any doubt but that a good digger can load enough coal in 6 hrs. to enable him to make good living wages, provided he can get the cars to load. He is paid by the ton, and the more coal he loads the more money he makes. The result is that he works hard and loads quickly what cars he has in sight. On the other

hand the dayman knows he has 8 hr. to perform his task and he works accordingly.

Now, in regard to there being a greater demand for coal in the winter than in the summer season, let me say that the consumer is largely to blame for this condition. If consumers would buy their winter's coal during the summer, it would help to equalize the demand throughout the year. This applies, of course, more particularly to the coal required for domestic use. The majority of households, however, fail to lay in their winter supply of coal before it is needed. The result is that, as winter approaches, there is a rush for coal and what should be mined in six months must be gotten out in three months or less.

Naturally, the suggestion of cutting down the time in the mines to a 6-hr. day and a 5-day week does not appeal to the operator, as it would be difficult for the mines to meet the demand for coal during the rush season, if the time is to be thus shortened. The capacity of the mine would be reduced, and there would be a general howl for coal such as was heard in 1917, and the price for fuel would soar. TIMOTHY GOLDON.

Clinton, Ind.

Letter No. 7—Referring to the letter of "Equality," *Coal Age*, June 19, p. 1136, it appears to me that its writer is not well informed in respect to the standard of mine ventilation in the coal mines of Great Britain. After an experience of 12 yr. in those mines, and an equal number in the anthracite mines of Pennsylvania, let me say that, while the methods of mining coal in different states and countries may differ, the principles of ventilation when reduced to their essential elements are the same everywhere.

In the bituminous coal field of South Wales, the mines are worked on the longwall system and their ventilation is very simple. There are no such things as leaky stoppings and crosscuts half-filled with rubbish that retard the circulation of air, but the coal being mined in a single face, the air has but one course to travel, and it is natural to suppose that the ventilation is good.

VENTILATION OF LONGWALL MINES COMPARED WITH ROOM-AND-PILLAR WORKINGS

The ventilation of a longwall face is quite different from the ventilation of room-and-pillar workings, where the air must pass up one chamber and enter another chamber through a narrow crosscut, in that manner circulating throughout the mine. Notwithstanding these unfavorable conditions in mines in this country, especially in the anthracite region where the coal is mined on steep pitches, the mine foremen and superintendents in charge have shown their capability by providing good ventilation at the working face.

Now in respect to the relative efficiency of mine workers in Great Britain and this country, it should be remembered that the workers in the mines of Great Britain are born miners. They understand an order given them and know it must be obeyed. Contrast this condition with what prevails in the mines of this country where mine workers speak every language and many fail to understand and obey the orders given them. The majority of our mine workers are like the man from Missouri who must be shown and, even then, he is apt to go wrong.

Again, more attention is given by the miners of Great Britain to see that the mining laws and mine regulations are kept and there is less violation of the rules than in this country. Some readers may not know that, in Great Britain, a committee of miners is chosen each month and charged with the duty of visiting all parts of the mine and reporting the condition of the ventilation, timbering, manways and working places.

The report of the committee is published and posted at the head of each shaft and in other places and informs the management of any defects that may exist and conditions that are unsafe. This idea of the inspection of the mine workings by a committee chosen by the miners from their own number is certainly a good one and must tend to encourage the thought that everything possible is being done for the good of the workers.

EFFECT OF VENTILATION ON EFFICIENCY OF WORKERS IN THE MINE

To my mind, one of the most important matters affecting the efficiency of mine workers is the proper ventilation of the workings. Show me a mine that has a large production of coal per man, and I will guarantee that that mine is well ventilated. On the other hand, when one finds a mine that has poor ventilation he is quite safe in concluding that the tonnage per man, in that mine, is below the average.

It goes without saying that good ventilation is essential, both from an economical and a humane standpoint. A miner will produce double the amount of coal in a well ventilated place than he can load when compelled to work in bad air. Neither will he be as exhausted at the end of the shift if he has had good air to breathe throughout the day.

To increase the efficiency of the workers in mines, therefore, give them good air and make their places safe and sanitary. The free atmosphere of heaven is the only thing that the poor share equally with the rich. Let us see, then, that the gloom and smoke of the mine is driven out by an ample current of pure air fresh from the surface.

It is my opinion that mine examining boards should ask more questions bearing on the ventilation of mines than usually appear in the examination of mine officials. It would inspire candidates to increase their knowledge of the principles of ventilation and make "Ventilation First" the slogan in mining practice. If ventilation is first safety will surely follow.

West Pittston, Penn. EFFICIENCY.

Turning Rooms Without Sights

Letter No. 4.—I have been interested in the different methods suggested for turning rooms and entries, without setting sights by the use of an instrument, and will mention a method that has been in use in our mine and which possesses the advantage of requiring a more portable outfit than what has been described previously. A small pocket tape is all that is necessary in this case.

Assuming that the two last instrument points, established on the entry, are in place, the first step is to locate a point on this line or its extension, at a convenient distance, say 3, 4 or 5 ft. from the instrument point, where it is desired to make the deflection. The location of this point must be carefully made so that it will be exactly on line with the instrument points. Under a good slate roof, it will often be found easier to first scratch the arc of a circle, using the tape as a

radius and taking the last intrument point as a center. This will give the proper distance and the new point is then easily marked where the instrument line intersects this arc.

Having located the first point in the extension of the instrument line, the next step is to lay off a right angle with that line, at the point just located. This is most easily done, by the use of a tape in the usual manner, taking the side of the right triangle as 3, 4, 5. Reference is now made to a table of natural tangents. The tangent of the desired angle is multiplied by the distance of the located point from the instrument point, which gives the distance to be measured on the perpendicular to the instrument line extended. A spad is now driven in the roof and the distance, from the point first located to the spad, is carefully checked by measurement. The line from the instrument point to this spad gives the required sight line.

This method, of course, is only used where great accuracy is not important; for example, when extending sights in rooms that have gotten off center, but have not much farther to be driven. The use of the method saves bringing up the instrument and making another set-up at the face of the room. The same method is also employed in setting sights for short rooms near the crop.

Where a pair of entries have reached the proper distance and their direction is to be changed it is often inadvisable to put in the instrument sights, until the entries have been driven a short distance in the new direction. In that case, the method I have mentioned is employed to give sights on the new course and prevent the entry from running into the air-course, which is turned in the same dierction.

WALTER H. DUNLOP, Division Engineer,
Kingston, W. Va. Solvay Collieries Co.

Outlook in Coal Mining

Letter No. 3.—In the issue of *Coal Age*, June 19, p. 1138, a correspondent asks for suggestions from those who are interested in the welfare of the coal industry, regarding what measures can be adopted that will help the many newly developed mines that were started during the war, with capital that was invested largely in a spirit of patriotism and are now handicapped by reason of the present depression in the coal market.

While it may be unkind to judge of another's motive, one can hardly refrain from holding the opinion that the majority of these newly opened mines started during the war were either efforts to make hay while the sun shines, or were misguided attempts of men inexperienced in the mining of coal. This opinion is based on my own personal observation in the southern Illinois coal field and on the statement of men of good judgment in mining matters, who have recently visited other fields.

Allow me to refer to the case of a certain mining town in the Franklin County field, in Illinois. Previous to the war there were, in that field, three well established mines averaging a daily output of 3000 tons and employing from 300 to 400 men in each mine. When the coal boom started, two "mushroom" mines sprang up in the same field, and employed between them about 100 men.

As time went on, it was not long before the larger mines lost a good percentage of their motormen, drivers, etc., by reason of the men volunteering or being drafted for service. They were mostly the young and energetic class among the workers; and every practical coal man knows that the loss of these men could not fail to cripple the output of the mines in a larger proportion than would be indicated by the number of men involved. It is not strange that the three established mines mentioned experienced a falling off in tonnage as great as 1000 tons a day.

Again, some of the few capable and energetic workers remaining decided, for various reasons, to go to work in the smaller mines. One inducement offered them was that the smaller mine is worked under a less pressure than a larger operation. As a result, we find hoisting engineers, top hands, cagers, trackmen, and others idly sitting about the "shoestring mine," waiting for a few diggers to produce from 300 to 400 tons of coal a day to "help win the war."

HANDICAPPED BY LACK OF EQUIPMENT

Can anyone deny that, had these few diggers, at work with a full complement of shift hands top and bottom, remained at work in the established plants where the output was seriously lowered by a shortage of men, they would have produced more coal and fulfilled their patriotic duty better, because those mines were equipped for putting out high tonnages, to say nothing of the fact that their entire equipment was already installed and had stood the test.

In closing may I ask, Is the coal trade now to be burdened by the extra drag upon its resources, caused by the helpless condition of these small operations, that, because of their ill-directed efforts, added little or nothing to the coal supply, whatever may have been their motive.

It is even suggested that this plaint of the mushroom mine owners is a veiled plea for the government ownership of mines. In any case should those loyal operators, who kept up the industry through the long years preceding the war and have borne unmeasured burdens, accept of this additional burden now thrown on the industry without protest? OBSERVER.

Duquoin, Ill.

Certification and Safety

Letter No. 14—I was much interested in reading the letter of John Rose, *Coal Age*, July 10. p. 68, regarding the need of the certification of mine officials. Like Mr. Rose, I believe that a certified mine foreman who does not continue to study along with his work, just as he did before he passed the examination, is not on his job and can expect accidents to continue to occur in his mine.

In my opinion, any man who takes a job as fireboss, assistant mine foreman or foremen before he has obtained his certificate, is not fit to look a certified man in the face. Here, in our town, we have men that are acting as assistant mine foremen, and, in some cases, night bossing, when they only hold fireboss papers. What seems strange is that if these men think they are capable of doing the work and taking charge of a mine, why do they not go before the examining board and secure their papers?

It is my belief that accidents in coal mines will not be reduced to a minimum until all bosses, from the superintendent down to the fireboss, are obliged to under-

go an examination every three years and to have had eight years' practical experience in the performance of all kinds of work required in coal mines, before they are permitted to take the examination.

The compensation law is a good law in the provision it makes for the injured and those dependent on a man who has been killed by an accident in the mine. It is time, however, that our mining laws provide better for the safety of the living, who may yet be injured by reason of the ignorance of men holding official positions and in charge of mining operations. It is a wonder to me that our mine inspectors and the better class of mining men do not get busy and move up about six notches in the matter of securing greater safety by compelling the examination of all men in charge of work undergound.

Speaking of firebosses, I claim that a candidate for that position should have at least eight years' experience in the mine. The fireboss is the guide to the safety of every man working below and on his intelligence and experience, their lives depend. Next to him comes the foreman, but that official is often not his own man, being compelled to follow the instructions and orders given him by his superintendent.

Young Superintendent a Stumbling Block to a Good Foreman

In one of the larger mines in Fayette County, in this state, the superintendent is a young man who never worked a day in his life underground, but was an engineer running a transit and educated in his line of work. It will be readily admitted by practical mining men that you cannot run a mine as you would run a transit, and a superintendent of that class can only prove a stumbling block to a good mine foreman.

What man who is familiar with mining work will say that such conditions are not the cause of six-tenths of the accidents occurring in our mines? For instance, the fireboss finds gas some morning when making his early examination of the mine and reports the fact in his book, with the result that the mine inspector takes the matter up with the superintendent and the poor fireboss loses his job. The superintendent then goes to the foreman and tells him to put John Smith to firebossing, who will probably be shrewd enough not to find the gas that the last fireboss reported.

Not long since, I worked in the place of a foreman who was away temporarily. The superintendent of the mine was of the class I have described. It will not be thought strange that I found the miners supplied with a cable and battery and firing their own shots at will. To my remonstrance, they replied that it was the orders of the bigboss.

Under such conditions, how can we expect safety in mines to be assured and the accident list grow less. Though a comparatively young man not yet 40, let me say to both firebosses and foremen, If you are bossing, be your own boss and guided by your own judgment.

Olyphant, Penn. JOHN WILEY.

Letter No. 15.—Referring to the interesting discussion on this subject, allow me to express my opinion regarding the employment of *certified* mine foremen, and to say that none other should ever be given the charge of a mine. The certified man should be a thoroughly practical and experienced miner. It makes little matter what is his nationality, but he should be a man that can go with a miner and show him how to work a breast, drive a gangway, draw back a pillar, set timbers and do other work required in the mine.

At the present time I am holding a position as assistant mine foreman. Before I became a certified foreman, I had performed every kind of work done in the mine. Judging from that experience, I am convinced that a man can only become a thoroughly practical and competent foreman who has done work of all kinds. He may have started in the mine as doorboy, later becoming a driver and performing daywork as trackman, timberman, or mining and loading coal in breasts and gangways, till he has at last gained experience necessary to draw pillars with safety. Such a man, I consider is one capable of taking the examination and becoming a certified foreman.

Foremen Must Have Practical Experince

As showing the need of a thoroughly practical experience for a mine foreman, let me cite a little incident that occurred not long ago in our mine, which is worked on the room-and-pillar system. Two miners were engaged drawing back a pillar between a couple of breasts that had caved, the outside breast being full of coal and rock above the battery, which had been built 30 ft. up from the gangway. The pillar was cut through at that place, when it was found that the chute was full of coal and rock.

Having inspected the place carefully, I gave the men instructions to brace the rock with strong timbers, and then get down to the bottom and put in a hitch or foothold for setting a good timber in front of the rock. They started to carry out my instructions, and I left them. As was learned later, the work had progressed far enough to give some protection behind the timbers. But, suddenly, the coal started to run and cut off the escape of one of the men, who was left shut in behind the battery.

Foreman by Promp Action Saves the Life of an Entombed Miner

Word of the accident coming to me while at dinner, I at once ordered an empty trip and, reaching the place, found one man loading a car at the gangway, while another stood idle at the battery. In response to my question as to why he had not tried to make an opening, he replied that he could do nothing.

Calling for a pick and a bar, I at once set to work and, in a short time, had opened a place the size of a car wheel. I shouted to the miner to slide himself through, but he was afraid to make the attempt. By a few words, however, I convinced him it was his only chance and instructed him to put his feet through the opening first, which he did and was then pulled through bodily to safety, white as a sheet and scarcely able to speak a word, but not hurt. Coal was loaded from that place for the next five days.

Let me say, in closing, that a competent mine foreman will have little trouble with his men if he talks quietly with them and reasons with them. It is that kind of a foreman that gains the confidence of his men and is liked by them. No foreman will make a success who thinks he knows it all. A foreman can always learn something from a miner, and we all have much to learn.

Fern Glen, Penn. JACOB J. SKOFF.

[This letter will close the discussion of "Certification and Safety."—Editor.]

INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD

Electrically-Driven Fan

I am inclosing a sketch of the present fan installation at one of our mines, showing a 10-in. pulley on the armature shaft of an electric motor that is operated at a speed of 645 r.p.m. The 10-in. pulley *A* is connected by a belt with a 36-in. pulley *B*, mounted on a countershaft that carries another 22-in. pulley *C*, which is, in turn, belted to a 60-in. pulley on the fan shaft. The distance from the armature shaft to the countershaft is 11 ft., center to center; and that from the countershaft to the fanshaft, 13 ft., center to center. The fan is 16 ft. in diameter and makes about 70 r.p.m. under the present arrangement.

It is now proposed to replace the 10-in. pulley on the armature shaft with a 12-in. pulley and connect this

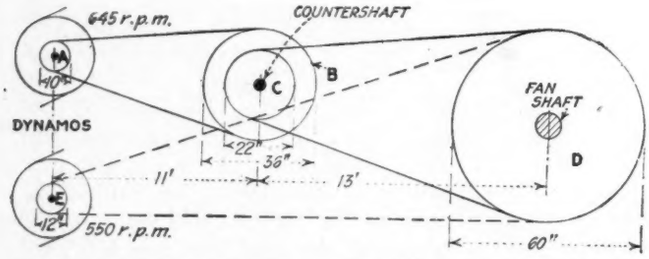


DIAGRAM SHOWING THE PROPOSED ELIMINATION OF COUNTER SHAFT

directly by belting it to the 60-in. pulley on the fan shaft, thereby eliminating the countershaft and its pulleys. Under the new arrangement, the motor will be operated at a speed of 550 r.p.m.

The original installation required a current of 40 amp. to operate the fan, and I want to ask, What current and what horsepower will be required in the new arrangement? In other words, What horsepower will be required to run the motor at the given speed (550 r.p.m.) and operate the fan, after the change is made, assuming no change is made in the circulation in the mine?

U. S. WILSON.

Briceville, Tenn.

The first step, in the solution of this problem, is to calculate the speed of the fan shaft, in the original installation, when the armature shaft is running at 645 r.p.m. Since the speed ratios of the consecutive shafts are equal to the inverse ratios of the diameters of their respective pulleys, each to each, we have for the speed of the fan shaft, under the first arrangement, the following:

$$\frac{x}{645} = \frac{10}{36} \times \frac{22}{60}; \text{ and } x = 65.7 \text{ r.p.m.}$$

The next step is to find the speed at which the fan will be driven after the change is made, the armature shaft of the motor then making 550 r.p.m. and carrying a 12-in. pulley belted to the 60-in. pulley on the fan shaft. Evidently, the first pulley having one-fifth the diameter of the second pulley, the speed of the latter will be one-fifth of the former; and the fan will now be operated at a speed of $550 \div 5 = 110$ r.p.m.

But, the power of the motor required to drive the 16-ft. fan at this increased speed is dependent on the mine potential, which remains unchanged. In other words, the resisting power of the mine is assumed constant, no change being made in the circulation in the mine. The quantity of air circulated by the fan, in that case, will vary as the fifth root of the fourth power of its speed. In other words, the quantity ratio is equal to the fifth root of the fourth power of the speed ratio of the fan.

Comparing these two installations, therefore, the quantity ratio is as follows:

$$\frac{q_2}{q_1} = \sqrt[5]{\left(\frac{110}{65.7}\right)^4} = 1.51$$

In other words, after the change is made, and the fan is operated at a speed of 110 r.p.m., the circulation in the mine will be increased 1.51 times, or slightly more than half-again the original volume.

In mine ventilation, however, the power on the air varies as the cube of the quantity of air in circulation. In other words, the power ratio is equal to the cube of the quantity ratio. Hence, in this case, the power required to operate after the change is made will be $1.51^3 = 3.44$ times the original power. But, assuming the voltage remains unchanged, the current will varry in the same ratio as the power and the current required to drive the fan at a speed of 110 r.p.m., after the change is made, will be $40 \times 3.44 = 137.6$ amp.

Therefore, disregarding the lesser frictional resistance, owing to having eliminated the counter shaft and pulleys in the second arrangement, the power comsumption will be increased 3.44 times, while the circulation will be increased only 1.51 times. This, however, is the natural result of any attempt to increase the circulation of air, in fan ventilation, by increasing the speed of the fan.

Whenever the circulation in a mine requires to be increased, every effort should first be made to clean up the airways, straighten air-courses, shorten the distance of air travel, enlarge breakthroughs and crosscuts and avoid sharp bends where it is necessary to deflect the course of the air.

Wherever practicable, the air should be split, which greatly enlarges the mine potential and decreases the mine resistance. To increase the circulation in a mine by increasing the speed of the fan is always an expensive use of power and should only be resorted to when other means are impracticable. This is particularly true in electrical operations where power must be purchased from a central station and it is necessary to minimize the amount of current consumed.

EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD

Indiana Mine Bosses' Examination, Held May 24, 1919

(Selected Questions)

Ques.—(a) Name the various devices used in conducting and distributing the ventilating air currents in a mine, giving the purpose or use of each. (b) What is the law respecting breakthroughs, air splits, trapdoors, and quality and quantity of air?

Ans.—(a) A *door* in a mine is used for the purpose of deflecting the air current from its course through one entry and causing it to circulate in another entry or section of the mine. A *canvas* or *curtain* is often used instead of a door, either to avoid the expense of building the latter, or when it is desired to deflect only a portion of the air current and allow the remainder to continue on its course by leaking through the curtain, which is divided at the center.

An *overcast* or *air bridge* is built over and across an entry or airway, for the purpose of conducting one air current across another, to enable the ventilation of a pair of cross-entries or section of the mine, by a split of air taken from the main current, without the use of doors on the main entry.

A *stopping* consists of a solid wall or partition built in a breakthrough or crosscut to prevent the air current from short-circuiting at that point and conduct it to the head of the entry where it passes through the last open crosscut and then returns through the back entry or return airway.

A *brattice* is constructed by setting a line of posts a short distance from and parallel to one rib of an opening, so as to form an air passage to conduct the current to the face of a heading or room. A stopping is sometimes improperly called a brattice.

A *regulator* is any device for regulating the volume of air circulating in an airway or section of the mine, its purpose being to divide the air in proportion to the needs or requirements in each section. A *box regulator* is a partition built in an airway and having an opening, the size of which is controlled by a movable shutter arranged so as to permit any desired quantity of air to pass through the opening. The box regulator is commonly placed on the return airway or back entry to avoid obstructing the haulage road. A *door regulator* is sometimes built at the mouth of an intake heading and locked in a position to divide the air in the desired proportion between that heading and the main airway when the haulage is performed on the return air current.

(b) Consult the mining laws of Indiana, which every candidate should study to become familiar with its requirements.

Ques.—In the absence of oxygen helmets, how would you proceed to enter a mine for rescue work after an explosion ? Explain in full.

Ans.—Having called for volunteers and sent for doctors, organize and equip the men selected because of their experience and familiarity with the mine workings, giving to each an approved and carefully assembled safety lamp and the necessary tools and other supplies, which have been brought together in the meantime.

Before the rescuers enter the mine, it is necessary to examine the ventilating apparatus and see that it is working properly, or make the necessary repairs to that end. At the first announcement of disaster, physicians and first aid men are summoned, and ambulances and the necessary blankets and first-aid supplies are brought together and made ready for use if required.

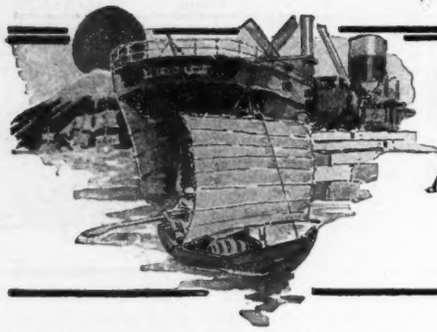
Divide the party into two divisions, placing each under a competent leader. The first and smaller division now enters the mine with the air current and proceeds with caution, not advancing ahead of the air. This party is equipped with one or more cages containing small birds or mice for the purpose of detecting the presence of poisonous gas, by observing its effect on the life in the cage. The work of this party is to examine and explore the entries and workings as rapidly as possible and rescue any victims that may be found, carrying them back to fresh air or to the surface and giving such first-aid treatment as may be required to restore consciousness.

The first party will also be able to give information that will assist the second party in its work. They are chiefly employed in rebuilding stoppings and erecting brattices to carry the air forward and restore the circulation in the workings. For that purpose this party is equipped with the necessary tools and supplies of canvas, timber, brattice boards, nails and other supplies.

Ques.—What are the dangers to be watched for and guarded against in a gaseous mine?

Ans.—The particular danger common to a gaseous mine is that due to the accumulation of gas in the workings or in abandoned places that are either improperly ventilated or have been partially sealed off. There is also danger of the possible accumulation of gas in crevices and pockets caused by the settlement of the roof slate over roads and in working places. Gas will occasionally accumulate, in crevices of the coal, under sufficient pressure to throw down a large section of the rib in an entry or working place. A similar accumulation in the roof strata will often cause a sudden and unexpected fall of roof. These occurrences are known as "outbursts" of gas and often prove disastrous.

The working of a gaseous mine requiring the exclusive use of safety lamps often proves dangerous owing to the permitted used of open lights on the haulage road. Gaseous mines are particularly sensitive to sudden barometric changes, especially where there are large abandoned areas containing accumulated gas. In a gaseous mine it is necessary to watch all ventilating apparatus and appliances for conducting the air current in the mine to insure their proper working condition.



FOREIGN MARKETS AND EXPORT NEWS

EDITED BY ALEX MOSS

New European Coal and Coke Tariff Issued

A new European coal and coke tariff has been issued by the Shipping Board, covering shipments from North Atlantic ports and Charleston, S. C., effective Aug. 1, 1919. It is as follows:

To	Coal per Long Ton	Guaranteed Daily Discharge, Tons	Coke per Long Ton	Guaranteed Daily Discharge, Tons
Bordeaux, Havre, St. Nazaire	$22.50	700	$33.75	600
Cherbourg	22.50	700	33.75	600
Rouen	23.00	1000	34.50	600
Antwerp, Rotterdam, Terneuzen	22.50	1000	33.75	600
Gothenburg	24.00	1000	36.00	600
Landskrona, Malmo	25.00	800	37.50	600
Oxelosund	24.00	1500	36.00	600
Stockholm	26.00	800	39.00	600
Helsingfors, Sundsvall	28.00	800	42.00	600
Bergen, Christinia, Copenhagen	25.00	1000	37.50	600
Korsor, Ronne	26.00	1000	39.00	600
Trondhjem	27.00	1000	40.50	600
Lisbon	22.50	1000	33.75	600
Bilbao, Cadiz	23.50	1000	35.25	600
Barcelona, Cartagena	26.00	1000	39.00	600
Cette, Marseilles, Naples	26.00	1000	39.00	600
Civitavecchia	26.00	1000	39.00	600
Nice, Genoa, Leghorn, Spezia, Savona	26.50	1000	39.75	600
Piraeus	28.50	1000	42.75	600
Venice, Trieste, Fiume	31.00	800	46.50	600
Salonica	31.00	1000	46.50	600
Bari	30.00	1000	45.00	600
Constantinople, Constanza, Smyrna	31.00	1000	46.50	600
Algiers, Oran	26.00	800	39.00	600
Tunis	26.50	1000	39.75	600
Sfax	27.50	1000	41.25	600
Alexandria, Port Said	31.00	1000	46.50	600

Discharge is as above indicated, with time counting 24 hours after arrival of vessel, whether in berth or not, Sundays and holidays only excepted. If discharge is not completed within the time specified, demurrage is to be paid at the rate of $1 per net registered ton per running day, payable day by day.

Coke is subject to the condition that vessel is to have the option of carrying not over 25 per cent. on deck at owner's risk.

Sheffield Coal Trade in 1918

The outstanding features of the Sheffield coal trade during 1918 was the shortage of supplies. According to figures published by the Coal Controller, the output up to the middle of September was over 15,000,000 tons less than for the same period in 1917, which with the increased requirements of certain of the Allies made an estimated shortage of 36,000,000 tons for the year. The position became so acute that the Coal Controller issued a household fuel and lighting order which went into full operation on Oct. 1. By this order supplies were rationed, the quantity allowed each householder being roughly 1 ton per room per annum, which could be used either in the form of coal, gas, or electricity. Coal prices have been strictly controlled; pit prices by the Prices of Coal (Limitation) Act; factors' profits by the wholesale coal prices order; and retail prices by local authority under the household fuel and lighting order. At the end of 1917, prices were 60 cents per ton higher than the standard advance of 96 cents allowed in 1915. During 1918 there were two further all-round advances—36 cents per ton in June and 60 cents per ton in July—which makes the present price $2.52 per ton higher than for the twelvemonth ending June 30, 1914.

A big strike of Yorkshire miners took place in June and resulted in a wage advance of 36 cents per day, by which the closing of a number of pits, which had given notice, was avoided. In the following month the miners obtained an increased war-wage bonus of 36 cents per day for workers over 16, and 18 cents per day for those under 16, which was in addition to a similar amount obtained in October, 1917. August saw more unrest, accompanied by strikes, at a time when the shortage of coal reached an acute stage. More than 170,000 men threw down their tools on this occasion, the grievance relating to the hours of surface men and laborers. The men won their case, the new arrangement being 51 hours' work per week instead of 54, or 8½ hours per day, with half an hour off for meals. It should be explained that the war-wage bonuses were given solely to cover the increased cost of food and are distinct from the various percentage wage advances and the war bonus given since the war.

Since the signing of the armistice demobilization has commenced, and men in the army who were formerly engaged in coal mining have been placed in the priority list. Already a good many thousands have resumed work. The coal shortage is, however, still acute, and it is generally conceded that more miners were taken away from the industry than was advisable, considering how much the success of the war depended upon the maintenance of an adequate supply of coal.

Coal and Coke Exports During May, 1919

Exports of coal as reported by the Department of Commerce for May, 1919, and the figures in May, 1918, in tons as finally revised, are as follows:

	May, 1918	May, 1919
Anthracite	425,110	398,890
Bituminous	2,119,700	1,429,612
Exported to:		
Italy	None	35,908
Canada	1,766,785	1,088,026
Panama	50,108	None
Mexico	14,181	6,810
Cuba	137,048	90,112
Other W. Indies	25,717	11,914
Argentina	14,750	22,589
Brazil	79,400	109,868
Chile	None	4,931
Uruguay	4,529	8,362
Other countries	27,182	51,092
Coke	146,740	33,299

Hoover Asked to Help in Coal Shortage Abroad

Shipping and fuel representatives of France, Belgium and Italy conferred with Herbert Hoover, head of the International Relief Organization, in Paris on Aug. 4 and decided to urge the Supreme Council of the Peace Conference to appoint a European Coal Commission to co-ordinate the distribution of European coal in an effort to avert what threatens to be a disaster.

The meeting was held as the result of a warning given by Mr. Hoover in an address at the recent conference in London of the Supreme Economic Council. He said that Europe's coal production was 35 per cent. below normal and that the United States could not offer relief because of the shortage of shipping. In his address Mr. Hoover said:

"The fate of European civilization now rests in the hands of the coal miners and coal mine owners of Europe to an equal, if not to a greater, degree than in the hands of the providers of foods and supplies during the next year."

At the meeting in Paris Mr. Hoover declined to accept the permanent direction of the proposed European Coal Commission, stating that he believed the problem to be strictly European and that the situation could not be relieved materially by the slight help which the United States could give.

Mr. Hoover said to the fuel representatives of the various Governments:

"The coal problem, with that of the approaching harvest and the solution of the immediate food pressure comes to the front as the greatest menace to the stability of life in Europe. This problem is domestic to Europe and is incapable of solution from the United States. Disregarding all other questions, an additional load of 1,000,000 tons monthly on American ports would, indeed, be a large tax, in the face of the trebling of the food exports of the United States above the normal pre-war level. Furthermore, such a tonnage would entail a tax on the world's shipping which cannot but affect freight rates generally. With a shortage in production of 20,000,000 tons per month, the contribution of even 2,000,000 tons monthly from America would be of little importance."

Only a greatly increased coal production and an improved organization for its distribution could save Europe from disaster next year, Mr. Hoover explained, and he urged that some sort of fuel control be established which would greatly stimulate production and secure such distribution as would maintain essential services on which economic and political stability must rest.

According to figures gathered for Mr. Hoover by experts, England's annual production of coal has fallen from 292,000,000 tons in 1913 to 183,000,000 tons, the present production. Germany's decline is slightly greater. Europe, at the present rate, will produce 443,000,000 tons next year, while the amount needed is 614,369,000 tons.

Coal and Coke Exports from New York in June

There were increases in the shipments of anthracite and coke to foreign countries through the Port of New York during June of this year as compared with those of June, 1918, but a decided decrease in the export of bituminous coal.

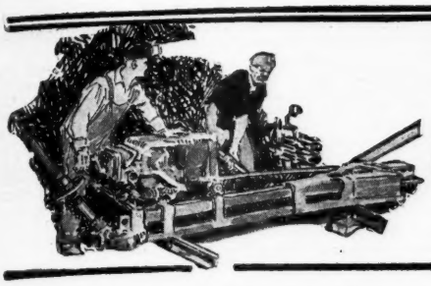
The reports show that 12 countries received 10,482 tons of anthracite during June of 1919 as compared with six countries receiving 6761 tons in June of last year, an increase of 3721 tons and an increase in the average price per ton of $1.91.

Twenty-five tons of bituminous coal at a cost of $10 per ton, all sent to Trinidad, were exported through this port during June, as compared with 6807 tons sent to five countries at an average cost of $7.45 per ton in the corresponding month of last year.

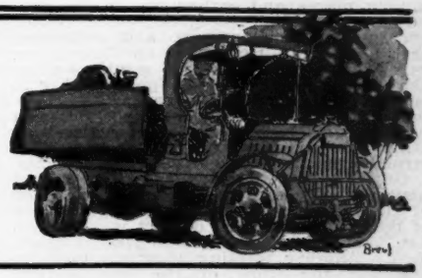
Nine countries received 2614 tons of coke in June as compared with 1605 tons sent to eight countries in June of last year at an average increase in cost of $3.61 per ton as compared with 1918 prices.

In the corresponding month of 1917 there were sent to foreign countries from the Port of New York 14,693 tons of anthracite valued at $106,173; 1939 tons of bituminous costing $14,466, and 3650 tons of coke valued at $49,646.

A London dispatch to the New York *World* quotes Secretary Damm, of the International Seafarer's Federation as saying that Rotterdam is crowded with American ships discharging coal, and that practically the entire coal supply of the Netherlands comes from America. No English coal for bunkering is available at that port. Scandinavian countries will also depend on America for coal supplies.



COAL AND COKE NEWS



Pittsburgh, Penn.

Coal men in secret conference.. Two-day meeting in Pittsburgh of Relations Committee of National Coal Association. Important business transacted.

An important industrial secret conference closed recently at Pittsburgh after a session of two days. The gathering included prominent coal producers from every section of bituminous territory of the United States. It was a meeting of the Government Relations Committee of the National Coal Association, whose central office has been opened in Washington, D. C.

It is stated that much business of importance, affected by the period of reconstruction, was considered, but no definite action was taken and will not be until the business and international situation is clarified. One of the problems discussed was the car supply situation which is to be met in the near future. A schedule of needs and requests was formulated in anticipation of the relinquishment of the railroads by the Government. The schedule embraces a program to be submitted to railroad officials, which it is hoped will bring about an equitable distribution of cars so that the trade will not suffer stagnation in some sections and overcrowding in others. The question of demurrage also is embraced. Nothing was given out for publication, the reason being that a report of the business transacted should go to Government officials before being made public.

Charleston, W. Va.

Lack of transportation in New River field limits production to 50 per cent. of capacity. Considerable smokeless goes west. Kanawha mines also limited to half time operation.

Not only was production still running far behind what market conditions would warrant but there was a prospect that little relief would be secured from the car shortage which has so greatly restricted production during recent weeks, when the month of August was ushered in, owing to the walkout of machinists throughout the country. With only one or two exceptions all the West Virginia fields were greatly handicapped during the week ended Aug. 2 in mining and shipping coal, cars available not being sufficient to permit of more than half the output of the weeks of the early part of July. This was especially true as to the Kanawha and New River districts. There was still an embargo on coal from the Kanawha field to tidewater; and, though New River field was not embargoed, strictly speaking, the tonnage moving to tide was extremely limited. Even though the strike of seamen had been settled, producers along the Chesapeake & Ohio R.R. did not anticipate any improvement in the car supply for a week or ten days, and the fact that so many shopmen went on strike may doom producers to further disappointment. Finding it impossible because of conditions at tidewater to ship much coal there, smokeless producing companies found a ready outlet for that kind of coal in western markets which have been unable to secure much New River coal in recent weeks owing to the strong export demand and the heavy tonnage being used by the Navy, the export demand still growing in volume.

Lack of cars curtailed the production of New River coal during the week ended Aug. 2 to as serious an extent as has been observed any time during the present year, the number of cars furnished being only about half of ordinary requirements, so that it is estimated there was not more than a 50 per cent. output in the New River field during the period just alluded to, as against an 80 per cent. about the middle of July. The shortage of cars and the absence of boats at tidewater were factors which limited the movement of New River coal to tidewater. As there was a strong demand for smokeless in the West, producers turned their attention to consuming areas in that section of the country which have been able to secure comparatively little New River coal recently. The Navy was a heavy consumer of New River coal, car shortage or no car shortage, and that tended to delay commercial shipments.

Although an unusually strong demand for Kanawha coals made itself felt during the week ended Aug. 2, nevertheless there was no way of meeting such a demand, owing to the pronounced shortage of cars in the district, there being, it is said, only about a 60 per cent. supply. Consequently, mines were limited to about half time in operation, this cutting down the output of the Kanawha field to about 110,000 tons. Under favorable conditions the mines of the district, or most of them, would have been able to operate on a full-time basis.

Hinton, W. Va.

All Chesapeake & Ohio mines shut down pending settlement of railroad shopmen strike. Unless transportation is restored quickly food shortage will result.

After Aug. 6 production of coal was entirely suspended at the mines in central southern West Virginia dependent upon the Chesapeake & Ohio R.R. for transportation facilities. Pending a settlement of the strike of the railroad shopmen, thousands of miners are thrown out of work. The Chesapeake & Ohio found it necessary to annul not only all freight trains operating west of Clifton Forge, Va., but all except through passenger trains, following a shutdown of all the shops on the system which completely tied up motive power except that necessary for through passenger service. Embargoes have been imposed on all classes of freight, including coal. The coal fields affected by the suspension of all freight traffic were the Big Sandy, Guyan Valley (including the Logan district), the entire Kanawha district (including Coal River, Paint Creek, Cabin Creek), the New River and the Winding Gulf districts; also all mines on the main line of the C. & O. But Kanawha mines on the Kanawha & Michigan R.R. north of the Kanawha River were still able to operate owing to the fact that the shopmen on this road had not gone on strike.

Not only were miners unable to work, but it was feared that innumerable coal camps in the territory affected would experience an actual food shortage unless service was restored within a short time. Inability of the mines to operate through lack of transportation facilities will tend to make a future coal famine a greater certainty.

Bluefield, W. Va.

Strike of railroad shopmen seriously affects Pocahontas and Tug River production. Working time of Kenova-Thacker mines cut down 100 cars.

The Pocahontas and the Tug River districts were most seriously affected by the strike of the mechanics of the Norfolk & Western R.R.; so much so that for the week ended Aug. 9 it was said that the car shortage loss would amount to about 40 per cent. of capacity. Even during the week ended Aug. 2 there was a serious car shortage, the loss in that respect leaping from 39,000 tons to 131,000 tons, an increase in a week of almost 100,000 tons; the lack of equipment was solely responsible for a decline in production from 337,000 tons to 282,000 tons, a loss of 55,000 tons in the space of a week. It was the car shortage alone which cut down production because both labor shortage losses and mine disability losses were reduced. Not only was there a loss in working time as compared with the week ended July 26, but there was an increase in the production loss of 94,000 tons. Coke also felt the effects of the coal slump, the tonnage of coal coked being only 5900.

During the week ended Aug. 2 the mines of the Kenova-Thacker district began to feel the effects of a car shortage to a greater extent than had been true during the last two weeks of July. The loss from such a source increased from 9000 to 21,000 tons, or from 5 to 12 per cent. The effect of such a shortage of cars was to cut down the working time of the mines of the district by about 100 cars and to reduce the output from 142,000 to 127,000 tons, or about 18,000 tons below the production for the corresponding periods of 1918. Both the labor shortage and the loss from mine disability were less. Quite material improvement was observed in the demand for coal from this district, the loss from no market running only about 1 per cent. Mines were producing up to about 72 per cent. of capacity.

Fairmont, W. Va.

Almost 50 mines shut down due to insufficient loading facilities in northern West Virginia. Supply of empties one-fifth of normal in Monongalia field. Coal tonnage for railroad use exceeds all previous shipments.

Prospects of a better supply of cars for northern West Virginia fields, indicated by a large number of cars on hand when the week began, were dissipated as the week ended Aug. 2 grew older; the supply of empties steadily diminished, though it is doubtful if the shortage was as serious as that with which producers had to contend during the week ended July 26. Not only small mines but the mines of the larger producing companies as well were affected, including the Consolidation and other companies. Almost fifty mines were shut down either at one time or another during the week because of insufficient loading facilities; in an effort to provide at least a few cars for all mines, the percentage system of distribution was resorted to. On the Monongahela Ry., which serves a number of mines in the Monongalia field, it is said that during a part of the week at least the supply of empties was only about one-fifth of normal. Northern West Virginia producers were hopeful of a large supply of empties soon, owing to a settlement of the seamen's strike, but realized that time would have to elapse before many cars could be unloaded and returned to the mines. Even with an embargo covering shipments to tide, the movement of coal to Curtis Bay and other piers was somewhat in excess of that for the week ended July 26, though still far below the ordinary flow of coal to such points. A large number of cars of coal consigned to railroads were shipped from the Fairmont district at the outset of the week, such shipments being in excess of all previous ones. There was a prospect that the Lake movement would be heavier than in recent weeks, but by the middle of the week Lake tonnage had dwindled to some extent. The market for all northern West Virginia coals developed further strength during the week, but full advantage of such an improvement could not be taken, owing to restricted shipping facilities.

Linton, Ind.

Mine hoisting engineers effect temporary organization. W. A. Bickel, of Chicago, gives interesting talk. Organization previously started expected to include all Indiana hoisting engineers in the society.

About 100 hoisting engineers from various points in the Linton mining district met in this city recently and took steps toward forming an organization of Mine Hoisting Engineers. There were representatives here from Dugger, Edwardsport, Bicknell, Clinton, Brazil, Terre Haute, Vincennes, Moonville, Jasonville and other

mining places and enthusiasm in the proposed organization was great, W. A. Bickel, of Chicago, was present and addressed the engineers. He gave an interesting talk and told why it would be to the interest of the men to get together in such an organization; asserting that the most powerful influence for the betterment of the condition of the engineers or any other craftsmen was education and constructive rather than destructive policies.

Other talks were given by local and visiting engineers, and at the conclusion of the addresses a temporary organization of the engineers of the district was formed. Lee White, of Bicknell, was elected president. Another meeting was scheduled to complete the work of the organization, headquarters of which will probably be in this city.

Mr. Bickel stated that there were 1500 mine hoisting engineers in Indiana representing a skilled vocation, all of whom were licensed and who held places of great responsibility. He said that efforts started only a short time ago had already resulted in the organization of 700 of them and that they would soon be 100 per cent. organized into their own body. The engineers enjoyed a banquet after the business session ended.

Terre Haute, Ind.

No headway made on making up tonnage lost during first half of year. Domestic demand shows some life. But warnings as to future fuel shortage not stimulating early buying sufficiently. Car supply fair.

Demand for coal from the Indiana field showed slight increases for the two weeks ended July 26, according to reports announced at the headquarters of the Indiana Bituminous Coal Operators' Association. Production which totalled 354,372 tons for the week ended July 2, was increased to 368,534 tons for the week ended July 26. The capacity of the field is approximately 750,000 tons a week, showing that no great headway has been made as yet in making up for the tonnage lost during the first six months of the year because of the lack of demand. Some mines have had orders for practically full time production, while many others have worked only a day or two a week. There is still a noticeable absence of orders for steam use. The domestic demand, however, has been showing more life, and there is a tendency on the part of dealers to fill their yards to capacity as fast as they can move the coal out to the householders. It is said by operators, however, that recent warnings as to the probable state of the fuel supply during the coming winter have not had the effect of stimulating early buying as much as had been hoped, and the most optimistic operators can not see any prospect of meeting the winter demand when it finally does come, in an adequate way. This will be particularly true if the winter should be a severe one, they say. Car shortages are still apparent in spots and on one or two railroads they have been aggravating. Thus, for the week ended July 19, there was a car shortage of 13.31 per cent. on the Monon and 10.76 on the Illinois Central. On the roads that serve the greatest number of mines, however, the car shortage has been quite slight.

Birmingham, Ala.

Wave of protest against state administration's coal and iron tax. Representatives of mineral districts fight unfair measure. Adverse sentiment against tax expressed by associations, clubs, labor unions and prominent citizens. Rate is cut and prospect of removal bright.

The administration forces of Alabama, headed by Governor Kilby, have received a check; their comprehensive program for legislation may be defeated. The appropriations, all of which have been withheld, pendin the adoption of a revenue measure, are now endangered, says the Birmingham *Age-Herald*. In the news columns of the July 31, 1919, issue of *Coal Age*, special features of this state's general revenue bill were noted; at that time the bill was still in the hands of a committee and the mine operators of Alabama were protesting against the proposed tax on coal and iron.

More recently this bill has been considered by the Alabama House of Representatives convening in committee of the whole. When that feature of the bill was reached which proposed a tax of 5c. a ton on coal and 3c. on iron ore, a storm of protest was raised by the representatives from the state's mineral districts. Coal and iron form the backbone of the commercial and industrial life of a number of counties of Alabama. And while a tax of a few cents may seem a small matter, yet that additional item of expense may lose many a mineral contract to Alabama it is thought—the straw that will break the camel's back. When contracts are lost mines may have to shut down; when the coal and iron output is curtailed, it is shown not only in the mine payrolls but also in many industries which are dependent upon coal and iron.

Among the representatives opposing this tax were some who had been recognized as administration leaders. Representative Arnold, of Jefferson County (the Birmingham district), charged Governor Kilby with trying to force through the Legislature bills which, he stated, would ruin the industrial section of the state. In addition to legislative action against this tax, there was a wave of protest by civic associations and other business bodies, including United Mine Workers. At a meeting of the Birmingham Civic Association, Senator Frank S. White stated that this proposed tonnage tax is the most unjust, unjustifiable and discriminatory tax ever proposed in Alabama.

One argument advanced in favor of this tax is that coal and iron represent permanent depletions of the state's wealth because the minerals are taken from the ground. Its discriminating character is even shown, says Senator White, by that very argument, for if coal and iron should be taxed for that reason then there should be a tax on every brick, every barrel of cement and lime—each sack of cement. Cotton, marble, lumber and graphite should be taxed. It would be a never ending procession. Discrimination and class legislation are contrary to the spirit of America and her institutions.

Prominent men of Alabama state that this fight does not belong to coal operators alone and should be taken from their shoulders; it applies to every citizen, and people should become thoroughly aroused. Mass meetings of citizens have been called in cities in mineral districts and other steps have been taken to impress the Legislature with the unfairness of the proposed measure. The preliminary test votes on the coal and iron tonnage tax at Montgomery while apparently showing a close division, are said to be highly encouraging. They show that the members of the House are convinced that it should not be imposed on Alabama's mineral district. A few members who opposed the tax of 5c. were apparently willing to vote for 2c. a ton. But the *Age-Herald* notes that they should bear in mind the principle involved—the discrimination, the sectional feature, the levy on the commodity itself.

It was stated that while the coal tonnage tax was retained in the general revenue bill as it will be reported by the committee of the whole to the House of Representatives, it was at the reduced rate of 2c. a ton; the iron tonnage section was not changed. In fact so confident of this were the opponents of that form of taxation that they made no effort to reduce the rate on iron ore. It was predicted that the tonnage tax would not be retained in the bill when finally passed by both houses.

PENNSYLVANIA

Anthracite

Hazleton—The State Hospital here which receives the mine workers of the eastern middle anthracite field has received a state appropriation which will enable, its trustees to erect a nurse's home.

Jeddo—A preminum is placed on mule disability at the mines of the G. B. Markle Co. The private stable of John Markle—the president of the company—has been moved from his private grounds and will be used as a mule hospital.

Audenried—The Lehigh & Wilkes-Barre Coal Co. has started driving an 1800-ft. drainage tunnel which will have its outlet near Brandonville. The tunnel will drain the Green Mountain and Honey Brook basins of the company.

Harrisburg—In 1918 there were 1050 fatal accidents in Pennsylvania coal mines, 494 in the bituminous region and 556 in the anthracite field, according to a report made to Commissioner of Labor Connelly on Aug. 4 by the Bureau of Statistics of the Workmen's Compensation Division.

Centralia—The Centralia colliery of the Lehigh Valley Coal Co. resumed operations recently after being idle about five months. During this idleness a new steel trestle was constructed from the slope to the breaker and extensive repairs were made to the colliery, including work on the slope. The colliery is short handed due to men having sought work elsewhere in the region during the long suspension.

Carbondale—The City Council here recently gave property holders permission to occupy certain sections of streets in the mine-fire portion of the city for the purpose of checking the spread of the fire in the mine workings. A steam shovel and other equipment will be used to strip the surface off the coal on Gilbert Street and Summit Avenue. A bond was exacted from the contractors who are to do this work to insure the streets being placed in good condition upon the completion of the work of checking the mine fire.

Scranton—Exoneration from the payment of taxes on its coal lands is being requested by the Scranton Coal Co., according to a communication to Mayor Connell, of Scranton, from James B. Smith, mine cave engineer, who states that the Scranton company intends to leave 50 per cent. of minable coal in the workings to insure surface support. Mr. Smith quotes Frank Wolfe, chief engineer of the Scranton Coal Co., as his authority for his statement as to pillars; in consideration of this, the company desires exoneration from assessment for the amount of coal which is to be left in the mines. No decision has been arrived at in regard to the matter, which will be given due consideration.

Bituminous

Connellsville — Indian Creek Valley coal operators are said to be rivaling in capacity requirements, the demand of wartime days. About 20 mines are reported in operation between Mill Run Junction and the Jones mill; a number of new openings are being made. July shipments of coal made a new record for the valley.

Pittsburgh—The executive board of the Coal Mining Institute of America met here during the week of Aug. 3. Plans for the activities of the institute during the coming year were outlined and the program for the annual meeting to be held during Dec. 3, 4 and 5 at Pittsburgh was decided upon. E. N. Zern, is president and H. D. Mason, Jr., secretary of the institute.

The central territory coal and coke committee of the United States Railroad Administration recently considered petitions for equalization of the freight rates offered in Indianapolis by southern Indiana coal dealers. The Indiana dealers pointed out that the freight charge in southern Indiana is 90c. per ton, while in western Kentucky it is 30c. per ton, giving the Kentucky men an advantage which swings an unfair percentage of the business their way. It was shown that the Louisville & Nashville R.R., serving the western Kentucky mines, charges 30c. per ton, while the Chicago & Eastern Illinois, serving southern Indiana, charges 90 cents.

WEST VIRGINIA

Huntington — Approximately 18,000 employees of the Chesapeake & Ohio R.R. are idle and 600 mines are closed in western Kentucky following an order to discontinue freight trains and cutting passenger trains 40 per cent.

Mabie—A new Y. M. C. A. building was opened recently at this place, in the Randolph County field. The building was constructed and will be maintained jointly by three companies for the use of their employees. The companies interested are: The West Virginia Coal and Coke Co., the A. Spates Brady Co. and the J. B. Jenkins Coal Co.

Weirwood—The Weirwood mine of the New River & Pocohontas Consolidated Coal Co., in Fayette County, was the scene of an explosion Wednesday night, Aug. 6, when seven miners were killed as the result of an accumulation of gas in one part of this shaft mine.

The explosion occurred in the seventh right cross heading off the Main East, about 3000 ft. from the shaft. The explosion was confined to that particular part of the mine and only those between the face of the heading and No. 2 room were killed, two machine runners making their escape.

Within an hour after the explosion District Mine Inspector Robert Lilly was at the mine and joined the rescue parties already organized, Chief W. J. Heatherman of the State Mine Department reaching the mine the next morning. It was found possible to penetrate to the part of the mine where the explosion had occurred within three hours after its occurrence when all but one of the bodies of the seven men killed were recovered, the last body not being located until late the following day under a pile of slate.

An investigation conducted by Chief Heatherman made it evident that gas had accumulated locally in the part of the mine referred to, owing to a door having been left open and that the gas had been ignited by the breaking of a cable wire used by the gathering locomotive. An inquest will be held during the present week.

The Weirwood mine has an annual capacity of about $35,000 tons. The company, on an average, employs only about 20 men at this mine, and there were said to have been 18 men in the mine at the time of the explosion.

KENTUCKY

Louisville — The Louisville Gas and Electric Co. is making numerous improvements at its mines in western Kentucky, including a large assembly hall in which moving pictures will be exhibited for benefit of employees. The company is considering several plans for welfare work.

TENNESSEE

Nashville — Governor Roberts of Tennessee suggested that the large state holdings near Petros, in Morgan County, may be developed for coal. He stated that surveys were being made to the center of the 10,000-arce tract for a railroad which could be quickly located should it be decided to start mining operations. Coal is now being mined on the state property near one corner of the tract under disadvantageous conditions as regards an underground haul of two to two and a half miles. In event of mining starting up in the center of the tract there is a possiblity of the railroad being built by a lumber company which will cut the timber and utilize this line to market it.

OHIO

Byesville—The tipple of the Little Kate mine No. 2 of the National Coal Co., of this place, is being dismantled and the tipple torn down. This plant has been operated for a number of years past with an average daily production of 1000 tons, it is said, the tipple being equipped with modern machinery to handle a large daily tonnage. The No. 2 mine adjoins that of the Minnehaha which by the new arrangement will handle the coal from both territories; thus a saving is expected to be effected in the mining of the remaining coal in No. 2 mine.

INDIANA

Sullivan — The Bays-Logan Coal Co., composed of Lee F. Bays and R. F. Logan, has bought from the People Coal and Mining Co. a mine near Coalmont with a present capacity of 400 tons a day. It is planned to increase materially the output and improve the property.

ILLINOIS

La Salle — The old Marquette mine near here has been abandoned and closed up. At one time this property was one of the large mines of the state and produced a considerable tonnage. The first shaft was sunk about 40 years ago by George H. Locey, of La Salle; he died a few months ago at Atlanta, Ga. Later Charles J. Develin developed the mine to big capacity. It was next taken over by Walsh Brothers, of Davenport, Iowa, who operated it for several years; they were twice burned out.

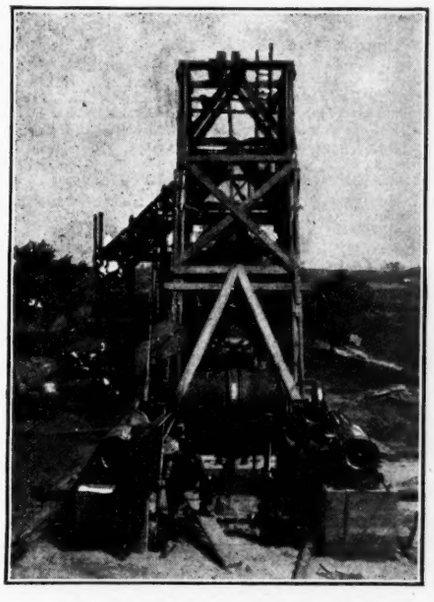
Zeigler—Extraordinary precautions are now being taken by many southern Illinois mining companies in paying off their large payrolls, since the bold daylight robbery at the United States Steel Co's. Middle Fork mine at Benton, some weeks ago. In one case, the Bell & Zoller Mining Co., at this place, hired a number of armed guards while they were paying off their $70,000 payroll. Besides having all the clerks and office force heavily armed and extra guards in the room, men and automobiles were stationed outside the building and an attempt at another such robbery as the Middle Fork holdup would have been easily foiled.

Belleville—H. O. Panhorst, auditor of the Staunton-Mt. Olive Coal Co., has positively identified one of the men held in the Belleville jail for the robbery of the Benton coal mining offices, as one of the bandits who robbed his own office early last spring getting away with $14,000 in cash. Mr. Panhorst and three clerks were locked in the vault. The three clerks accompanied Mr. Panhorst to Belleville and all four of the men were positive in their identification. Following the more recent robbery at Benton, where it is said that $42,000 disappeared in a daring daylight holdup, and one of the robbers was killed, feeling became so bitter against the captured bandits that they were removed by the Benton sheriff and placed in the Belleville jail for safekeeping. One of the robbers was shot through the left lung and it is believed that he will die.

Duquoin, Ill.—James Hamilton, of the Hamilton Coal and Mining Co., of Weir, Kan., has started to develop a strip mine northeast of town. A tract of ground which was formerly owned by Dowell & Lafont, of Duquoin, has been leased and plans have been made to strip the coal and mine it with small steam shovels. Preliminary details have been arranged and the Illinois Central R.R. will soon begin construction on a switch to the site. This plant will make the second strip mine at Duquoin, the other being operated by the E. J. Scott Coal Co., of St. Louis, south of the town.

William Johnson and F. F. Oliphant, of Harrisburg, have leased 2000 acres of coal land near Duquoin and work will be started at once on the construction of a large mine. The land lies near the Saline County Coal Co.'s No. 4 mine and the contract calls for coal to be hoisted within one year. All equipment will be modern throughout, including a washer.

Edwardsville—The progress made at Donk Bros. Coal and Coke Co.'s new No. 4 mine at this place is noted in the accompanying illustration which shows the Clark hoisting engine in its temporary quarters at the main shaft. As noted in



DONK BROTHERS NO. 4 MINE

the June 12, 1919, issue of *Coal Age*, this plant promises to be one of the prominent mines of the state. It is to be a 5000-ton, skip-hoist operation whose design and construction is being looked after by Allen & Garcia, of Chicago.

CANADA

Sydney, N. S.—Coal production is on the increase at Sydney, as shown by the July output. The Florence colliery was again premier with a record output of 16,000 tons, followed by Princess, which increased its production over the previous month, and raised to the surface 13,000 odd tons. Scotia, on account of the disarrangement of the electrical plant, went back considerably, but on the whole had good average outputs.

Halifax, N. S.—D. H. MacDougall, president of the Nova Scotia Steel and Coal Co., has purchased for his company from the British ministry of shipping (represented by director J. B. White, of New York) the coal-handling plant on the Canadian National railway terminals at this place.

Foreign News

Melbourne, Australia—Regulations have have been pased under the War Precautions Act putting under control of the Prime Minister the entire coal output of the Australian commonwealth. The regulations further empower the Federal Government to fix wages and conditions of employment in the mines and establish the price of coal. Acting Prime Minister Watt, in announcing the new regulations, pointed out that the step was taken in order to avoid a strike of the miners in New South Wales, through which the output of that state would have been stopped and many of the industries of the commonwealth paralyzed.

Personals

L. E. Huggins has been appointed assistant manager of sales of the coal department of the United Fuel and Iron Co., with headquarters in the House Building, Pittsburgh, Penn.

D. H. Parker formerly mine superintendent at the Marianna mine of the Union Coal and Coke Co., has accepted the same position at the Isabella mine of the Hillman Coal and Coke Co., Hillcoke, Penn.

J. L. Canby has been appointed district manager of sales of the Chicago Pneumatic Tool Co., succeeding Nelson B. Gatch, who has been transferred to New York as district manager of sales.

Isaiah Clayton is now mine superintendent at the Canonsburg mine of the Canonsburg Gas Coal Co. Mr. Clayton was formerly in charge of operations for the Masten Coal Co., at Coon Island, Penn.

E. J. Payne, of Huntington, W. Va., has severed his connection with the Main Island Creek Coal Co., of which he has been general sales manager, to manage the general office of the recently organized Export Coal Co., at Huntington.

Lieutenant A. F. Strouse, formerly superintendent of the Grindstone mine of the H. C. Frick Coke Co., has returned from duty overseas and is now representative at Pittsburgh, Penn., for the Underfeed Stoker Company of America.

J. M. Davis, formerly operating vice president of the Baltimore & Ohio R.R. and now manager of the New York properties of this corporation, has resigned, effective Sept. 1, to become president of the Rock Hill Iron and Coal Co., with offices at No. 1 Broadway, New York City.

Theodore A. Hendley, for a number of years salesman for the Crescent Coal Co., at Peoria, Ill., has returned a sergeant from overseas where he spent 15 months with the American Expeditionary Force. Mr. Hendley will resume his former duties with the Crescent Coal Co.

C. M. Young has resigned as Assistant Professor of Mining Research at the University of Illinois to take the position of Professor and head of the Department of Mining Engineering at the University of Kansas. Professor Young was formerly editor of the Colliery Engineer, at Scranton, Penn., and later associate editor of *Coal Age*.

George Watkin Evans resigned his position as district mining engineer for the U. S. Bureau of Mines and has entered the field as a consulting engineer, specializing in coal, including geological surveys, examinations and reports on coal prospects, operating coal mines, mining methods, preparation of coal for market and valuations of coal properties. Mr. Evans' headquarters is in the Smith Building, Seattle, Wash.

R. B. Isner, of Elkins, has been appointed general manager of the Boone County Coal Corporation, effective Aug. 1, with headquarters at Sharples, W. Va. Prior to this appointment, Mr. Isner had been general sales manager of the West Virginia Coal and Coke Co. since its organization in 1917, having been retained by that company when it took over the Davis Colliery Co., of which Mr. Isner was manager of sales. He had been with the Davis interests since 1902.

Fremont Wilson, consulting engineer, who has recently returned to New York to resume his practice after a year spent in charge of construction work in one of the large shipyards, has recently been asked to report on the cost of equipping three bituminous coal plants with modern machinery throughout. He would greatly appreciate receiving catalogs, bulletins, illustrations, data sheets, prices and so on pertaining to the matter in question from manufacturers or agents. During August this information may be sent to his residence, 444 Riverside Drive, New York, N. Y.

Gen. C. B. Dougherty recently celebrated the fortieth anniversary of his connection with the Susuehanna Collieries Co. in a fitting manner by giving a dinner at Hotel Redington in Wilkes-Barre to the operating department of the company as well as the M. A. Hanna & Co., of which he is

purchasing agent and assistant to the manager. Robert A. Quinn, manager of the Susquehanna company, acted as toastmaster, and referred to General Dougherty, his long years of service and his steady advancement in glowing terms; he also referred to his faithful service in the welfare of the Susquehanna company as well as that of the Hanna, in which he has been holding such responsible positions. Among others who expressed high admiration for General Dougherty was George H. Ross, of Philadelphia, vice president of the Susquehanna company; a number of others connected with the mining and sales companies in question also attended the dinner and paid tribute to General Dougherty in expressions of friendship and esteem.

Obituary

William H. Tanner died of pneumonia on Aug. 4 at his home in Mahanoy City, Penn. He was 57 years of age. For 30 years Mr. Tanner was general inside foreman at Boston Run and Tunnel Ridge collieries of the Philadelphia & Reading Coal and Iron Co. A wife and four children survive.

Publications Received

Annual Report of the Mines Branch of the Province of Alberta, 1918. Department of Public Works of Province of Alberta. Illustrated; pp. 137; 6½ x 10 inches.

Practical and Mechanical Books. Norman W. Henley Publishing Co., New York. Catalog for 1919. Unillustrated; pp. 40; 3¼ x 6 inches.

Bibliography of Petroleum and Allied Substances in 1916. By E. H. Burroughs, Department of the Interior, Bureau of Mines. Bulletin 165. Unillustrated; pp. 159; 5⅞ x 9⅛ inches.

Best Automobile and Aviation Books. Norman W. Henley Publishing Co., New York. Editions for 1919. Illustrated; pp. 16; 3¼ x 5½ inches.

Safe Practices. National Safety Council, 168 N. Michigan Ave., Chicago, Ill. Protecting Life Against Fire. Part II. Fire Extinguishment. Illustrated; pp. 15; 8½ x 11 inches.

Annual Report of the Minister of Mines of the Province of British Columbia. Victoria, British Columbia. Report for the year ending Dec. 31, 1918. Illustrated; pp. 510; 7½ x 10½ inches.

Recovery of Gasolene from Natural Gas by Compression and Refrigeration. By W. P. Dykema, Department of the Interior, Bureau of Mines. Bulletin 151. Petroleum Technology 40. Illustrated; pp. 123; 6 x 9 inches.

Abstracts of Current Decisions on Mines and Mining. By J. W. Thompson. Reported from September to December, 1918. Bulletin 179. Law Serial 18. Department of the Interior, Bureau of Mines. Unillustrated; pp. 165; 6 x 9 inches.

Recent Developments in the Absorption Process for Recovering Gasolene from Natural Gas. By W. P. Dykema, Department of the Interior, Bureau of Mines. Bulletin 176 (Petroleum Technology 50). Illustrated; pp. 90; 5¾ x 9 inches.

War Gas Investigations. By Van H. Manning. Advance chapter from Bulletin 178, War Work of the Bureau of Mines. Department of the Interior. Bureau of Mines. Bulletin 178-A. Unillustrated; pp. 39; 5¾ x 9¼ inches.

Trade Catalogs

Texaco at Home and Abroad. The Texas Co., Houston and New York. Pp. 46; 9 x 12 in.; illustrated. A sketch of some of the interesting items about the business of this company from oil well to market.

Nonpareil Corkboard Insulation. Armstrong Cork and Insulation Co., Pittsburgh, Penn. Folder. Pp. 6; 3½ x 6 in.; illustrated. Information about this insulation for cold storage rooms and freezing tanks.

Jeffrey Straitflo Ventilators. Jeffrey Manufacturing Co., Columbus, Ohio. Bulletin No. 270. pp., 8; 7½ x 10½ in.; illustrated. Describes and illustrates special ventilation apparatus and installations of this type.

Triplex Power Pumps—Vertical Single Acting. The Deming Co., Salem, Ohio. Bulletin 300. Pp. 39; 6¾ x 9¼ in.; illustrated. Description of the various pumps made by this company and illustrations of the different types.

A Chain of Evidence. Morse Chain Co., Ithaca, N. Y. Catalog No. 14; 6¼ x 9 in.; illustrated. Illustrates and describes the Morse silent chain and shows a few of the many large power drives. Contains full data necessary for filling out the blank inquiry page.

Ironton Storage Battery Locomotive for Mining and Industrial Purposes. The Ironton Engine Co., Ironton, Ohio. Bulletin No. 502. Pp. 32; 8½ x 11 in.; illustrated. Illustrations show various departments of the plant at Ironton; also battery locomotives, motor generator sets and switchboards.

Recent Coal and Coke Patents

Hopper for Automatic Stokers. J. S. Fulton, assignor to United Stokers Corporation, Chicago, Ill., 1,278,325. Sept. 10, 1918. Filed Oct. 31, 1917. Serial No. 199,576.

Smoke Consumer. R. J. Johnson, Lake Benton, Minn., 1,278,937. Sept. 17, 1918. Filed May 10, 1917. Serial No. 167,770.

Water-Tube Boiler. C. W. Dyson, Washington, D. C., 1,279,094. Sept. 17, 1918. Filed Apr. 17, 1916. Serial No. 91,721.

Coking Apparatus. F. Pribyl, Wilmette, Ill., 1,279,757. Sept. 24, 1918. Filed Nov. 4, 1913. Serial No. 799,113.

Smoke Consuming Apparatus. I. Therrien, Quebec, Can., 1,279,939. Sept. 24, 1918. Filed Mar. 12, 1917. Serial No. 154,197.

Ash Sifter. A. F. Staples, Dorchester, Mass., 1,279,600. Sept. 24, 1918. Filed Mar. 2, 1918. Serial No. 220,071.

Briquet and Method of Manufacturing the Same. C. E. Hite, assignor to American Briquet Co., a corporation of Delaware, 1,290,992. Jan. 14, 1919. Filed Apr. 17, 1917. Serial No. 162,745.

Safety Device for Mines. A. G. Biondi, Los Angeles, Cal., 1,292,236. Jan. 21, 1919. Filed Sept. 6, 1918. Serial No. 252,962.

Portable Coaling Device for Furnaces. G. C. Noteman, Lakewood, Ohio, 1,281,640. Oct. 15, 1918. Filed May 13, 1918. Serial No. 234,065.

Extensible Bridge Wall with Moist Air Circulation for Boiler Furnaces. C. Roudy, Paris, France, 1,281,843. Oct. 15, 1918. Filed Feb. 17, 1917. Serial No. 149,264.

Hopper Car. A. Campbell, assignor Enterprise Railway Equipment Co., Chicago, Ill., 1,281,286. Oct. 15, 1918. Filed May 14, 1917. Serial No. 168,401.

Coaling Barge. L. S. Evans, Spartanburg, S. C., 1,281,542. Oct. 15, 1918. Filed Nov. 21, 1914. Serial No. 873,282.

Chain Grate. P. L. Crowe, Jersey City, N. J., and A. Frankenheim, New York, N. Y., 1,281,525. Oct. 15, 1918. Filed Nov. 21, 1914. Serial No. 873,272.

Briquet-Making Machine. F. E. Berlin, Spokane, Wash., 1,282,370. Oct. 22, 1918. Filed Apr. 4, 1918. Serial No. 226,607.

Industrial News

Johnstown, Penn.—Jacob M. Hoffman of this place has purchased the coal lands and plant of the Kerr Coal Co., of Freeport, Penn. Mr. Hoffman operates a mine adjoining the Kerr property and it is understood that he will consolidate the two plants.

Washington, D. C.—The Alaskan Engineering Commission states that the construction of the Government Alaskan R.R. is 80 per cent. completed; but there yet remain three years work and an expenditure of $18,000,000 to $20,000,000 to complete the system. About 2000 persons are now employed on the work.

Chattanooga, Tenn.—The Raccoon Coal Co., which recently increased its capital from $50,000 to $100,000, has completed negotiations for the purchase of coal property near Kelley's Ferry, and is planning development and the installation of the necessary machinery and equipment for operation. E. W. Virden is president.

Charleston, W. Va.—Fire is said to have caused a loss of about $30,000 at the plant of the Ephraim Creek Coal Co. recently when the company's upper tipple was destroyed in a blaze of unknown origin. It is probable that the tipple will be rebuilt at an early date. The company also lost 300 tons of coal in the tipple at the time it was destroyed.

Romaine, Ohio—The Fair Oaks Coal Co., of Columbus, has opened a new mine at this place, on the Western Ohio R.R. R. A. Crawford, of Newark, is president, and R. C. Kyle, of Columbus, general manager.

East Chicago—The firm of Bull & Livensparger has been appointed the sales representative of the Green Engineering Co. in Chicago and northern Illinois territory. E. H. Bull of this firm has been connected with the Green company as an engineer, for the past seven years; D. A. Livensparger has been a member of the Green sales force for the past nine years.

Hinton, W. Va.—Smokeless coal will be produced by J. B. Laing, of Lewisburg, and others, who have leased 2000 acres of coal land from the Gauley Coal Land Co. in Greenbrier. The operation of the lessees will be on Meadow Creek of Meadow River about 12 miles from Rainelle. It will be necessary to build about ten miles of railroad in order to reach the tract leased.

Jefferson, Penn.—The work of building the town at the coal plant of the Mather Collieries Co., at this place, Green County, on Ten Mile Creek, is progressing steadily. Recently work was started on 70 new houses. It is said the coal company is spending $35,000 this summer on the construction of roads and streets; also a motion picture building is being erected.

Gassaway, W. Va.—The plant of the newly organized Vance Coal Co. will be at Exchange, in Braxton County, where the company owns a tract of coal; the company is capitalized at $100,000. Philadelphia people largely are interested in the new enterprise as follows: William S. Furst, C. P. Burtner, Harriett L. Burtner, Esther A. Burtner, together with Vance H. Burton of Exchange.

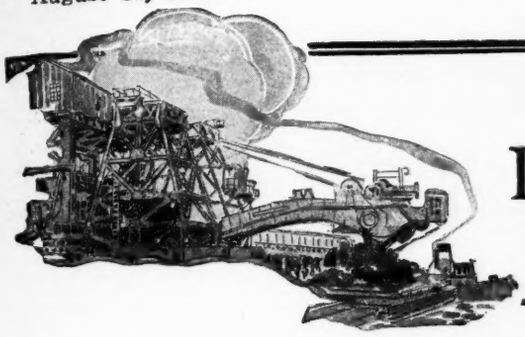
Carrolltown, Penn.—The Fairmont Mining and Machinery Co., of Fairmont, W. Va., has completed the installation of machinery for the Binder Coal Mining Co., at Tunnel Siding near this place. The tipple and mine are electrically equipped. The plant is to have a capacity of from 1200 to 1400 tons of coal a day. Edwin Binder, of Barnsboro, is president; Chrales Adams, of Carrolltown, secretary-treasurer; James F. Green, of Carrolltown, general manager.

Morgantown, W. Va.—The plant and holdings of the South Pittsburgh Coal Co., near Morgantown, have been sold to the Davis Coal Co., of Morgantown. This tract is underlaid with a low sulphur coal, it is reported, and the present capacity of the plant is about five cars of coal a day. An even better grade of coal than is now produced will be shipped, it is announced, the company having arranged to install screens. The tract purchased has been in litigation for some time.

Logan, W. Va.—Active operations will soon be started by the Island Creek Mining Co., a concern whose activities have been dormant for several years. This company, headed by J. J. Ross, a well known Logan operator, has 3000 acres in the Big Creek section of Logan County which it will develop under the direction of Fred Haislip, general manager. The Logan Development Co., of which Mr. Ross is general manager, will build 1½ miles of road to the holdings of the Island Creek Mining Company.

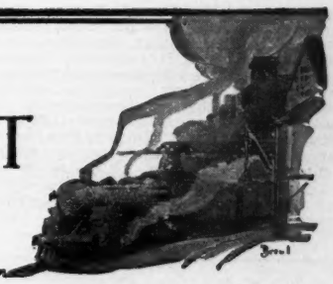
Hinton, W. Va.—Hinton men will reorganize the Hominy Creek Land Co., having purchased all the holdings of that company in Nicholas and Greenbrier counties. On the 1100 acres included there is said to be a 6-ft. Sewell seam. Those joining in the purchase of the Hominy company were J. W. Graham, of Hinton; Dr. K. M. Jarrell, C. M. Ward, Dr. W. W. Hume, C. V. Cottle, of Beckley; and Ash Mankin, of Marshes. The following officers were elected: J. W. Graham, president; Dr. K. M. Jarrell, vice president; Dr. W. W. Hume, secretary and treasurer.

Charleston, W. Va.—Between Jan. 1 and June 30, 1919, 38 new coal companies have been organized in West Virginia, representing an aggregate capital of $8,690,000. Nearly all of such companies were organized for the purpose of producing coal, only a few being sales or holding companies. Of the 38 companies so organized a number have started construction work on their plants, while others organized early in the year have mines in operation, so that the organization of such companies means an addition to the production of West Virginia coal. Thirty-four coal companies were dissolved in the six-month period, most of such companies never having been engaged in operating mines. Many companies during the first half of the year increased their capital stock, the largest increase being that of the Boone County Coal Corporation, whose capital stock was increased from $3,000,000 to $12,000,000.



MARKET DEPARTMENT

EDITED BY ALEX MOSS



Weekly Review

Market Conditions in Soft Coal Show Betterment—Middle West in Difficulties—Labor Unrest —Car Shortage and Embargoes Hamper Output—Anthracite Production Steadily Increasing—Outlook Favorable

RAILROADS and industrial consumers are beginning to stock bituminous coal. Continual dripping of water will wear away stone, and repeated warnings that delayed buying would react unfavorably upon large users of fuel are now accomplishing their purpose. Under the influence of better buying the quality grades of soft coal from eastern mines are advancing in cost, with the supply unequal to the demand.

Middle West operations are still up against it, for a preference is being shown by interior coal consumers for the product coming from West Virginia and other sections where the high grade coals are mined. The result is that many mines in Illinois, Indiana and Ohio are operating only at about 50 per cent. of their full capacity. Further complications have been brought about by striking miners in Illinois, who have stopped work pending the adjustment of a wage dispute.

The output of bituminous coal for the week ended Aug. 2 totaled 9,946,000 net tons, which is a slight decrease when compared with the production of the three weeks preceding.

Labor unrest is everywhere prevalent. Miners demand that a formal announcement be made that the war is over, so that existing wage agreements may be revised upward to meet the higher cost of living. Under an agreement entered into about eighteen months ago, no wage revisions in the coal-mining industry were to be discussed until peace was announced by the President.

Embargoes placed on shipments of coal originating on the lines of the Chesapeake & Ohio Railroad, because of the strike of the railroad shopmen, resulted in the shutdown of most of the mines served by this road. As the Chesapeake & Ohio hauls an average of 125,000 tons of coal daily, it can readily be appreciated what effect a longtime embargo would have on coal production in West Virginia.

Car shortages continue to hamper the efforts of the coal operators. Many cars are now being rushed to the West for use in the shipment of grain, and it is unlikely that there will be sufficient cars for the movement of coal for some time to come.

Just why there is a scarcity of coal-carrying equipment is no secret. The funds of the Railroad Administration became exhausted on Jan. 1, 1919. In its efforts to conserve in every way possible, the Railroad Administration ordered the discontinuance of the repair of all cars, and particularly coal cars. On June 20, an order was issued to resume the repair of coal cars. Owing to the fact that the car shop forces had been dismissed and had become scattered, it took at least six weeks to make this order effective. Thus no cars were repaired for seven months, and all those that were nonfit for service went to sidetracks. At this writing the work of repairing the cars is progressing very slowly, the reason alleged being that an order from Washington has stipulated that no one should be employed at this task who has not had at least four years' experience in repairing cars.

All the domestic sizes of anthracite continue to be insufficient to meet the demand. Pea coal and the steam sizes, on the other hand, are a drug on the market and bid fair to continue so. Coals produced by the so-called independent companies are being offered freely at premiums varying from 90c. to $1.75, depending on the ultimate destination.

The production of anthracite increased somewhat in the week ended Aug. 2, the output being estimated at 1,831,000 net tons as against 1,827,000 net tons the previous week. Labor conditions in the hard-coal regions are growing better; and if there is no interference with transportation, production may be expected to increase.

WEEKLY COAL PRODUCTION

Production of bituminous coal in the week ended Aug. 2 is estimated at 9.946,000 net tons, a slight decrease below the three preceding weeks. This rate of production, approximating 10,000,000 tons a week, is somewhat above current consumption, as railroads and industrials have begun to stock coal. If production is continued for the remaining 22 weeks of the year at an average of 10,000,000 tons a week, production for the year will be about 480,000,000 tons, equal to the output in 1913, and a decrease of 18 per cent. compared with 1918 but below that in 1916 and 1917. As indicating in part the reason for the lack of market for bituminous coal the first part of this year, it is noted that the railroads, with a consumption of 154,000,000 tons of bituminous coal in 1918, consumed 17 per cent. less coal the first half of 1919 than in the corresponding period of 1918, and the production of pig iron declined 10 per cent. in the same corresponding period.

The production of anthracite in the week ended Aug. 2 is estimated at 1,831,000 net tons, a slight increase over the previous week. It is reported that the supply of labor in the anthracite regions is improving, and with the present strong market and no interference with transportation, production may be expected to gradually increase.

Improved running time is reported for the week ended July 26, in western and central Pennsylvania, Virginia, Alabama and the far west. The gain in central Pennsylvania and the far west is attributed to better demand, in Virginia to better labor conditions, and in western Pennsylvania to general improvement in other conditions. Better market was offset by increased car shortage in Illinois, Indiana and southern Ohio, while in Kansas and Missouri labor difficulty reduced operating time.

Bituminous coal dumped at lower Lake ports during the week of July 26 was 892,736 tons, compared with 920,184 tons in the week of July 19. Except for the week of July 12, this is the lowest week since early in May. The heavy movement of coal up the Lakes, early in the season, filled the upper Lake docks, and the lack of demand until recently and now the lack of cars for carrying coal inland from the Superior docks, are the indirect causes to which is attributed the present congestion of lower Lake ports and the consequent falling off in the movement of Lake cargo coal.

The production of beehive coal increased from 371,000 net tons in the week of July 26 to more than 377,000 tons in the week of Aug. 2. The increase was in Pennsylvania, and in Washington and Utah, all other districts both West and South recording considerable decreases.

BUSINESS OPINIONS

Dry Goods Economist—Business in dry goods and allied lines is excellent. Prices for practically all goods are high, but they are being paid without protest in all sections of the country. Retailers have been laying in heavy stocks of goods and are seeking further supplies regardless of ruling prices.

Marshall Field & Co.—Current wholesale distribution of dry goods was much in excess of the corresponding week a year ago. The number of merchants in the market was considerably more than for the same period last year. Reports of excellent retail business continue. Orders from road salesmen for both immediate and fall delivery showed an increase over those of the same week of 1918.

The Iron Age—Actual stoppage of pig iron and steel making by railroad strikes in the Cleveland and Chicago districts in the past week have given more weight to the possibility of curtailment by strikes in the steel industry itself. Blast furnaces and steel works operations of the American Steel and Wire Company, at Cleveland have been largely suspended. At the South Chicago works of the Illinois Steel Company seven out of 12 blast furnaces are banked, and at Gary 14 out of 44 open-hearth furnaces are idle.

American Wool and Cotton Reporter—Trading in the Boston wool market has been somewhat spotty, but the demand for fine wools is still in evidence. Some speculation is reported in medium wools, dealers feeling that they will be considerably higher in value than they are at the present time. Business in raw cotton has not been very active. Fluctuations have shown the varying views and operations of those venturesome enough to trade in such erratic markets. Many advise that it is not conservative to do much buying under present conditions.

Atlantic Seaboard

BOSTON

Prices continue advancing. New levels for better grades. Threatened railroad strike a factor. No comprehensive buying. New York pier market more active. Hampton Roads coals in short supply. Water receipts here light. Almost no anthracite loading at Philadelphia.. Anxiety over slow movement.

Bituminous—After a week or so of dullness the market has apparently recovered, and quiet buying here and there has again caused a mild stiffening of prices. Quotations at this writing are for prompt acceptance and are on a level 15@25c. higher than a fortnight ago. Purchases are still confined to a few large buyers who need shipments in better volume, although in the past few days of railroad turmoil there has been an impetus to buying on the part of consumers generally. On Aug. 8 the N. Y., N. H. & H. declared an embargo against all freight from connecting lines, food for human consumption alone excepted, and within a few hours the Boston & Maine made a similar announcement. The Boston & Albany has not yet placed any restriction, although traffic conditions in this territory seem to be hanging in the balance.

The better grades from Pennsylvania all-rail are of course taking the lead on prices. Shippers who have available good grades from Cambria districts and in any volume are very much the exception and for that reason are in position to command even higher prices than a week ago. At first hands $3.25@3.35 has been paid and that would mean $3.40@3.50 from the consumer. There are several medium grades that are selling down to $3@3.10, but these are not so actively in demand. Buyers generally are still discriminating between grades, and while this is partly the result of taking anything and everything during 1918, some of it is because so many consumers in this territory are used to Pocahontas and New River and are sceptical over substitutes.

While there is a disposition here not to get panicky over the threatened railroad strike, certain features of it have been brought close home to buyers the past few days. With suburban service practically eliminated on two of the systems running from Boston there is reason for much anxiety. From the steam-users whose stocks are small there has developed a spot demand for coal at the various rehandling piers, but the tonnage available is small and we have yet to hear of any marked advance in prices.

At the same time there is no comprehensive buying. Middle-houses are still making purchases, but less for their own account than for customers who prefer not to let their wants be known in the open market. Certainly it is far from a runaway market, as yet, and the fact remains that there is still an abundance of free coal of one grade or another. One of the railroads here has been trying to buy low volatile coal for power-house purposes, but the difficulty is over the price to be paid, rather than any lack of the grade desired. To that extent the market is still in the hands of the buyers, and they are not yet in the position where they are forced to pay the price asked.

Over the New York piers the better grades are in more active request, especially for bunker and export use. The seamen's strike had an effect upon movement, but steamers are now reporting with regularity and the tonnage available for New England is correspondingly light. At Philadelphia there is a surplus of high volatiles, due to the tie-up of railroad-owned barges, but gradually this situation is being cleared up. Shippers who have contract or other obligations to the Navy are being called upon for their full quota, and in more instances than one shippers are buying from others in order to meet their commitments.

The Pocahontas and New River agencies continue to devote most of their tonnage to over-sea business. Various interruptions in the flow of coal have been threatened the past week, but thus far nothing serious has transpired. At Norfolk the electricians walked out, thereby throwing one of the piers out of commission, but otherwise the loading there has continued about as usual. An advance in wages to mine-workers in the Pocahontas field is said to have been granted, effective Aug. 1, and buyers here have been notified of the additional charge on their contracts which will amount to 35c. per gross ton. A similar advance in the New River field it is said will amount to 50c. per ton.

Receipts here by water from all the loading ports are very light. Aside from steamers for big public utilities like the Boston Edison and the elevated railway there are remarkably few arrivals. To a very large extent the steamers that were built for the coastwise trade are offshore, many of them making regular trips to Buenos Ayres and Rio Janeiro. Rehandling factors are in no position to take on additional business, and should there be any sharp spot demand it is hard to see where the coal can be had for prompt forwarding from points like Boston, Providence and Portland.

Current quotations on bituminous at wholesale range about as follows:

	Clearfields	Cambrias and Somersets
F. o. b. mines, net tons.	$2.60@3.10	$3.00@3.60
F. o. b. Philadelphia, gross tons	4.79@5.35	5.20@5.80
F. o. b. New York, gross tons	5.10@5.70	5.50@6.20
Alongside Boston (water coal), gross tons	6.85@7.35	7.10@7.85

Georges Creek is quoted at $3.70 per net ton, f. o. b. mines.

Pocahontas and New River are quoted at $6.25 @6.50 per gross ton f. o. b. Norfolk and Newport News, Va., in response to export demand. There are practically no sales for coastwise shipment.

Anthracite—Shipments the first ten days in August have been alarmingly small. This market depends for much of its water coal on the movement of the Reading fleet from Philadelphia, and for practically a fortnight now there have been almost no sailings from that end. Two tows did get away on Aug. 5, and others were to follow a few days later, but it will take several weeks to resume anything like normal movement. As a consequence there has been practically no anthracite loaded at the Port Richmond piers, and this is at a time when there are grave misgivings over the future of supply in most of our cities and larger towns. The trade is most insistent in other directions, west and along the line, and New England losses in August will hardly be made up later.

All the domestic sizes continue in very short supply. Pea and the steam sizes on the other hand are a drug on the market, and bid fair to continue so. Independent coals are being offered freely, the premium varying from 90c. to $1.75 per ton. There is a Massachusetts commission holding hearings on the high cost of commodities, and doubtless publicity will be given to the premiums now being asked.

NEW YORK

Dealers are optimistic as to supply of anthracite for the winter. Production reports encouraging and dealers say considerable coal has been put into bins. All three domestic sizes short. Steam sizes are easier. Bituminous moves slowly and operators report bad car supply. Prices hold steady.

Anthracite—The lack of sufficient prepared coals to fill the requirements of consumers and the possibility, however remote, of retail dealers entering the fall season with smaller stocks than they have carried in previous years under normal conditions, continue to be the features of the industry. Notwithstanding the clamor for coal, the trade believes there will be plenty of coal to meet all necessary requirements this winter and that unless the unforeseen occurs there will be no serious shortage such as faced the country earlier in the year.

Demand remains strong and dealers continue to complain of slow deliveries. While dealers are short of coal at present, there is reason to believe that consumers are considerably better off as regards supplies than it is generally realized.

Reports from the mines show that production is being maintained at nearly the two-million-ton mark in response to the growing demand for coal; and to offset the reports that shipments are more than 4,000,000 tons less during the coal year beginning Apr. 1 when compared with the same period of last year, it is claimed that of this amount the actual decrease in domestic sizes is not more than 1,500,000 tons. The balance of the decrease is attributed to steam sizes, much of which is due to the closing down of the washeries.

Some complaint is heard of the indifference displayed by the mine workers in various parts of the region. Frequently collieries are idle sometimes on the very day the output is badly needed. So far no complaint has been heard of the lack of cars such as now exists in the bituminous fields.

All three of the domestic coals—egg, stove and chestnut—continue to be short, the first two being the shortest, and producers and shippers claim to have sufficient orders ahead to keep them busy for many weeks.

There is a continued heavy call for the larger sizes from Canada and New England, and large shipments are being sent to these points.

The air is filled with rumors of new combinations of coal interests. One rumor has to do with a coming together of several independent operators and that the formal announcement will be forthcoming this week. Another has to do with the oft-repeated rumor of a combination of several retail yards in Brooklyn.

All retail dealers in Greater New York report an active season with many unfilled orders.

The market for the small coals is busy, but shippers are not finding it difficult to take care of the situation. Buckwheat No. 1 is being held around $3, with rice at about 25c. less for the better grades. Barley is the longest on the list.

Last week's dumpings as of Aug. 8, at the railroad piers, were 5866 cars as compared with 6363 cars the previous week.

Quotations for company white ash coals, per gross ton at the mines f.o.b. New York tidewater lower ports, during August, follow:

	Mine	Tidewater
Broken	$5.95	$7.80
Egg	6.25	8.10
Stove	6.50	8.35
Chestnut	6.60	8.45
Pea	5.20	6.95
Buckwheat	3.40	5.15
Rice	2.75	4.50
Barley	2.25	4.00

Bituminous—The activity in the local market has died down. Demand is slow and resumption of heavy selling is not looked for soon. Manufacturers and large consumers took advantage of the easy market of a few weeks back to stock up, and now that that has been accomplished they are not buying. However, this let-up has not left the market oversupplied with coal. The mines as a rule are not working more than half-time, and car supply along the Pennsylvania and New York Central has been so poor that operators are complaining more of it than of labor, which has failed to show any improvement.

The future does not look encouraging in the eyes of many tradesmen. With the bins of most consumers filled and cars moving slowly, due to three causes—bad equipment, grain movement and the steel industry requirements—there are many who do not see anything promising until early winter.

Buying is more active away from the seaboard, and prices at the mine are stronger than on the tidewater basis. Railroads are coming into the market and are said to be stocking heavily.

Shippers report a lack of the better grades, most of which is tied up on contract. In this situation some see an outlet for the medium grades, which are hard to move when the best grades are available. They point out the possibility of engineers becoming familiar with these cheaper grades and that producers may find it necessary to reduce their prices for the better coals if they want to dispose of their surplus supply.

Reports from Newport News and Hampton Roads show almost a lack of shipping there due to the strike of railroad shopmen, which also causes a serious setback in the program for sending coal to foreign lands.

Locally, the situation is spotty. Some shippers report many inquiries while others say everything is quiet. With the exception of Pools 1, 71 and 9, the other pools have been embargoed.

Dumping of bituminous at the local railroad piers during the week ended Aug. 8 amounted to 6463 cars as compared with 5997 cars the previous week.

Current quotations on spot coal, net tons, at the mines average about as follows:

	Spot
South Fork (best)	$3.15@$3.35
Cambria (best)	2.95@ 3.10
Cambria (ordinary)	2.75@ 2.95
Clearfield (best)	2.95@ 3.10
Clearfield (medium)	2.75@ 2.95
Clearfield (poor)	2.50@ 2.75
Reynoldsville	2.70@ 2.90
Quemahoning	3.10@ 3.25
Somerset (best)	2.95@ 3.10
Somerset (poor)	2.50@ 2.75
Western Maryland	2.50@ 2.75
Fairmont	2.10@ 2.35
Latrobe	2.60@ 2.65
Greensburg	2.50@ 2.60
Westmoreland, ¾ in	2.75@ 2.90
Westmoreland run-of-mine	2.50@ 2.60

PHILADELPHIA

Anthracite domestic sizes extremely tight. Pea moves better. Some dealers feel easy on future outlook. Financial situation good. Steam coals quiet. Bituminous price increases continue. Stronger buying and car shortage the cause. Little contracting. Spot business heavy.

Anthracite—The briskest sort of demand is maintained for the domestic sizes. While an exception must be made in the case of pea coal, this size is also beginning to share in a better movement, as the dealers are receiving one and two-ton orders from people in moderate circumstances, who show a disposition to lay by some coal. The larger companies are still asking their customers to take liberal proportions of pea coal along with the other domestic sizes, and even then some tonnage is left for the storage yards. The independent shippers seem well able to move their pea tonnage at the company circular, and as a consequence of all these efforts every local yard has an almost capacity stock of pea.

Stove has lost no part of the demand displayed by it all summer, and this is still the one size that all retailers are seeking. Egg is in almost the same class, but as the tonnage undelivered on the books of the dealers is not nearly so large as stove, they are not so insistent for this size. Chestnut is moderately free with many dealers, although we know of more than one instance where it is quite welcome. Other yards though are accumulating an unusual tonnage of this size for this time of the year, and these are the dealers who place more faith in the demand for nut as compared with pea and for this reason are making special efforts to get extra supplies.

Considering the local situation as a whole, some of the dealers are inclined to view it as being in good shape for the winter. They argue that with the exception of the two last summers, more coal has already been put away this summer than at any time previous. It must also be said that a considerable tonnage was left over in the cellars from last winter, and it is felt that a heavier supply than usual is now on hand with the better class of trade. They reason that it will actually take an unusual winter to cause any real suffering in the city. As they see it the one great advantage in present buying is that of price, as further increases are imminent, and when the coal-burning weather arrives the burden, as always, will fall on those least able to afford it. While this is the view of the small minority, there is a great deal of sound fact in it.

It is generally believed that all dealers have less tonnage on their books now than they have had all summer, and more orders are being delivered than are being placed upon the books, although there is a semblance of briskness to this also as compared with other years. This has all been brought about by the increased prices asked by the individual shippers, and which the dealers using that coal in any appreciable volume will endeavor to pass along to the consumer.

Dealers are now very cautious about taking orders at a price, and one of the largest companies in advertising prices this week does so with the stipulation that they are subject to change. For August standard retail prices are about covered by the following scale: Egg, $10.70; stove, $11.10; nut, $11.05; pea, $9.45; all per gross ton. This is of course for dealers handling exclusively or principally company coal, and in addition there is a charge of 40c. a ton for wheeling or carrying. Concerns using a considerable portion of independent coal are adding 50c. a ton to these prices, and even then the increase is not always covered, as the jump at the mines ranged from 45c. to $1.60 a ton.

Until this week it was generally felt that still further increases were due for September, but with Congress actively going into the rising costs of all commodities it is just possible that the producers will go a little slower before adding any more to the price, even though they still insist that the business is far from profitable. There are still some whisperings as to the possibility of a fixed retail price, but it is believed that the trade generally does not want to see this. The only exception would be among the retailers handling high-price coal, who would profit by the fixing of a margin to cover their increased costs.

A nice feature of the trade is the fact that the biggest percentage of the business is on a cash basis. Of course most retailers have more standing out than last year when cash payment was almost enforced by Government direction, but they have less standing on their books than they expected to have. The shipping companies as a natural consequence are having little difficulty in maintaining a close payment of accounts.

The one weak spot in the anthracite trade is in the steam sizes. Rice and barley give all shippers much anxiety. For the latter size there is little demand, and were it not for the fact that this size is used in increasing volume at the mines all producers would find it hard to take care of it. As it is, the storage yards of the big companies contain record tonnages of these two sizes. A good tonnage of buckwheat is going into the trade, with a tendency at times to improvement, but it will take a couple of months yet before this size is entirely absorbed by current demand.

Bituminous—The pronounced upward price movement begun a week ago is still in evidence. The best grades are difficult to get and they are all well over the $3 mark. If the present rate of increase continues for a few weeks, all fuels will be over the $3 figure. The increases have been due to two causes, the first that an increasing number of buyers, stirred by the agitation of a possible shortage, have come into the market all at once, and the other is the growing car shortage, especially in the Fairmont region. Even the ordinary grades are moving freely and an indication of the scarcity of tonnage is the increasing number of buyers, representing brokerage houses, who are going into the region.

It is difficult to give an accurate survey of the present trend of the market. Any number of consumers claim that the shortage of fuel is not real and that it has been fostered by the operators, and as a consequence they refuse to buy. We have the opinion of one prominent producer, who at times says he feels that there will be a definite sagging in demand along about October, as there is a heavy tonnage of coal now above ground. On the other side, it would appear that the labor question and the car supply would have a tendency to maintain present conditions right through the year. There is a growing feeling that inside of a year there will be a noticeable competition with fuel oil. So far there have been no noticeable inroads on this account, but it is known that big fuel users are actually looking into the possibility of using oil.

The recent strong demand for coal has stirred up certain tardy buyers who had been hoping for more favorable prices, and these consumers are asking for contract figures. Very few shippers under the present circumstances are willing to take on increased tonnage obligations, and these buyers are falling back on spot coal.

The recent prices per net ton are as follows:

Georges Creek Pig Vein	$3.25 @ $3.50
South Fork Miller Vein	3.25 @ 3.50
Clearfield (ordinary)	3.05 @ 3.15
Somerset (ordinary)	2.95 @ 3.05
Fairmont lump	2.80 @ 2.95
Fairmont mine-run	2.70 @ 2.80
Fairmont slack	2.20 @ 2.35
Fairmont lump (ordinary)	2.55 @ 2.65
Fairmont mine-run	2.40 @ 2.55
Fairmont slack	2.35 @ 2.45

BALTIMORE

Export coals in great demand with prices going higher. Wild buying characterizes market in bituminous. Poor coals being eagerly bought up. Anthracite receipts light.

The strike of the railroad shopmen at various points, and the consequent declaration of embargoes on coal destined to Norfolk and Newport News, served to strengthen the local market in bituminous coal. Export coal prices continued to mount as the week passed. Many vessels are loading here for foreign ports, and in several instances the Railroad Administration permitted the lifting of embargoes to enable certain firms to load vessels for foreign account; and this despite the fact that there is a large volume of vessel coal here that is already accumulating demurrage charges.

Throughout the week foreign buyers have been ready to pay almost any price for fuel if they could get immediate shipments. In fact, doing business for export appears to be only a question of obtaining bottoms. The Custom House officials for the week under review announced that 13 vessels had left Baltimore carrying 57,095 tons for foreign countries. This was divided between 50,230 tons cargo and 6865 bunker. Holland obtained five ships, Italy four and Cuba, Sweden, France and Chile one each.

Shortage of rolling stock forced the domestic prices to rise and buyers of all classes sought to obtain coals at almost any figure. In the Cumberland section last week only 600 cars passed through daily, but this week the number reached 1000. Should the cars be available it is expected that at least 2000 cars daily will be loaded and ready for shipment. Even with the increased receipts this week the supply ranged from 33⅓ to 50 per cent. of the demand.

Reports here indicate that practically all of the mines had been working to capacity, but the railroad situation will likely call a halt on mining if the cars are not moved quickly and empties made available.

The market was unsteady throughout the week because of the wild buying. A little coal was offered unexpectedly out of

Coal and Coke Securities

New York Stock Exchange Closing Quotations Aug. 11, 1919

STOCKS	Ticker Abvn.	Bid	Asked
American Coal Co. of Allegheny	(ACL)	45	....
Burns Brothers, Com	(BB)	135	140
Burns Brothers, Pfd	(BB)	110	115
Central Coal & Coke, Com	(CK)	55	....
Central Coal & Coke, Pfd	(CK)	63	....
Colorado Fuel & Iron, Com	(CF)	44½	45
Colorado Fuel & Iron, Pfd	(CF)	....	125
Consolidation Coal of Maryland	(CGM)	75	....
Elk Horn Coal, Com	(EH)	38	38¾
Elk Horn Coal, Pfd	(EH)	44	48
Island Creek Coal, Com	(ICR)	39	....
Island Creek Coal, Pfd	(ICR)	75	....
Jefferson & Clearfield Coal & Iron, Pfd	(JF)	63	....
New Central Coal of West Va	(NCC)	5	....
Pittsburgh Coal, Com	(PC)	69¾	70
Pittsburgh Coal, Pfd	(PC)	95¾	96½
Pond Creek Coal	(P'D)	19	19½
Virginia Iron, Coal & Coke	(VK)	61	61½

BONDS	Bid	Asked
Cahaba Coal, 1st Gtd. 6s, 1922	96½	....
Clearfield Bituminous Coal, 1st 4s, Ser. A, 1940	75½	....
Colorado Fuel & Iron, Gen. 5s, 1943	90¾	92
Colorado Indus. 1st Mtg. & Col. Tr. 5s, 1934	79	80½
Consolidation Coal of Maryland, 1st Ref. 5s, 1950	....	87
Jefferson & Clearfield Coal & Iron, Sec. Mort. 5s, 1926	96	....
Lehigh Valley Coal, 1st Gtd. 5s, 1933	99½	100
Lehigh Valley Coal, Gtd. Int. Red. to 4%, 1913	77½	....
Lehigh Val. Coal & Nav. Con. S. F., 4½s, Ser. A, 1954	90	....
Pleasant Valley Coal, 1st S. F., 5s, 1928	80½	....
Pocahontas Coal & Coke, Joint 4s, 1941	83½	83¾
Pocahontas Con. Collieries, 1st S. F. 5s, 1957	84½	87
Roch. & Pitts. Coal & Ir., Helvetia Pur. Money 5s, 1946	93	....
St. L., Rocky Mnt. & Pac. Stamped 5s, 1955	....	80½
Tenn. Coal, Iron & R.R., Gen. 5s, 1951	90	....
Utah Fuel, 1st Sinking Fund 5s, 1931	87	....
Victor Fuel, 1st Mtg. Sinking Fund 5s, 1953	55	70
Virginia Iron, Coal & Coke 1st 5s, 1949	84	85½

Pool No. 71, and this was taken up quickly at prices that started at $3.25 mines basis, and went above $3.50 and even higher. From Pools Nos. 9 and 10 limited quantities were offered at $3 and $3.25, and then the prices went higher. Fuels of poor quality, which a few weeks ago could hardly be given away, were snapped up eagerly at $2.50 as the minimum basis.

It is reported that the Pennsylvania R.R. is accummulating a local reserve of 500,000 tons of bituminous.

The increase in the price of anthracite for August has not brought forth any complaints from buyers. The public accepted the increase and appears ready to take all the hard coal it can get. Dealers carefully explained that the increase was due to the demand of independent mine operators for premiums. While premiums are being paid, it has not resulted in the dealers being able to obtain as much coal as they desire. The receipts of anthracite during the week were light.

Lake Markets

PITTSBURGH

Car shortages still more pronounced. Better demand for coal. Concern over possible Government price control.

Car shortages have become still more pronounced, and many mines have their output seriously curtailed in consequence. The situation arouses the gravest apprehensions as to the future, when bad weather comes. Railroads are making such efforts as they can to put more cars into service, but it is rather plain that more car repair work should have been done before this. Unrest among the shop employees of the railroads, leading to strikes at Cleveland and in the Chicago district, is far from reassuring.

Demand for coal has increased very materially, but part of the increase is due not to increased requirements but to curtailment of shipments through car shortages. Coal prices are firmer all along the line, while in slack there has been a sharp advance in steam grades, fully 30c. a ton. This is presumably a reflection of the fact that the lake shipping season is nearing its end, while in a very few weeks shipments will begin to taper off, and the production of slack will be correspondingly reduced.

Coal producers are much concerned over the possibility that Government control of prices will be resumed under the Lever act. Developments that would tend to make this control desirable, from the standpoint of the Government or consumers, are deplored for several reasons, the chief one being that it would place all coals on the same level, and the discrimination buyers have lately come to exercise, in paying higher prices for the better grades, has been very welcome. At the same time, if conditions were in line to force high prices the operators would probably prefer to have the Government step in and prevent such a movement, as in the long run a famine market would react disadvantageously on the trade. We quote: Steam slack, $1.80@2; gas slack, $2@2.30; steam mine-run, $2.30@2.45; gas mine-run, $2.50@2.70; ¾-in. gas, $2.80@3, per net ton at mine, Pittsburgh district.

BUFFALO

Bituminous coal market improving slowly. Jobbers tired of waiting. Prices rather unsteady. Cars rapidly growing short. Big demand for anthracite.

Bituminous—The feature of the trade is the slight advance in the price of slack. This indicates a pretty strong market, though there is complaint that the mine asking prices are not uniform. There may be several reasons for this. With a market that is not quite sure of itself there are always sellers who despair of getting full prices and will sell remnants for less and sometimes to stimulate a new customer. The jobbers are all doing something, which is a decided improvement over the early part of the season.

The car situation is becoming serious. None of the mines has a sure supply, and there are days when the supply runs down to 25 per cent. of the needs. This ought to interest the consumer, but it does not seem to. Nowhere is the demand at all insistent. The trade must be gone after, and it is the best salesman who gets it. Even some of the jobbers who have done well all along are afraid they are losing ground. The Canadian trade is still an uncertain quantity, and it is likely to remain so for awhile.

The worst of the situation is that the volume of business is not what it was expected to be by this time. The confident predictions made early last spring have been met by continued industrial difficulties, which do not promise to disappear right away, though until they do the business of the country cannot flow on smoothly. This is the real reason for the delay in all sorts of industrial activity. Nobody knows what to do, and to make a wrong move would be serious.

Bituminous prices are strong and some shippers call them satisfactory, at $4.55 for Allegheny Valley sizes, $4.80 for Pittsburgh and No. 8 lump, $4.65 for same three-quarter, $4.20 for mine-run and $3.80 for all slack, with smithing special at $5.70 and Pennsylvania smokeless at $4.60, all per net ton, f.o.b. Buffalo.

Anthracite—The demand goes up as the supply fails to. Everybody cries for it, and the distributors of all grades are hard pressed. The all-rail trade westward has been cut to a small driblet to enable the trade to meet the local demand and the requirement to the Lakes. More coal is promised, but if it does come it will go just as the present supply does.

Coal men as a rule do not like the effort at sensation on the part of the press to display stories of anthracite shortage, for it merely makes people uneasy and helps nobody, unless it be at the expense of some one else. All the coal is going straight to the consumer now, in as careful a proportion as possible. Should consumers buy coke it would help. They may be obliged to buy bituminous also.

The August prices of anthracite are 10 cents higher than for July, except grate and buckwheat, as follows:

	F.o.b. Cars, Gross Ton	At Curb, Net Ton
Grate	$8.55	$10.20
Egg	8.85	10.50
Stove	8.95	10.70
Chestnut	9.05	10.80
Pea	7.40	9.25
Buckwheat	5.70	7.75

The effort to keep up Lake shipments is carrying the totals well beyond those of last season. The amount to August this season is 1,856,349 tons, as against 1,295,476 tons to the same time last season. The July shipment was 609,350 tons, as against 429,320 tons last season July. For the week the amount was 114,900 tons, of which 47,100 tons cleared for Duluth and Superior, 20,300 tons for Chicago, 21,300 tons for Milwaukee, 7200 tons for Fort William, 7200 tons for Green Bay and 6800 tons for Sault, Canada.

Freight rates are 50c. to Chicago,-Sault, 47½c. to Milwaukee and 42½c. to Duluth-William.

CLEVELAND

Belief that coal is not now over-priced seems to hold sway among large consumers, for despite attacks upon the price of coal, along with other commodities, buying continues. Tonnages available for the lake trade and northern Ohio are slightly decreased because of car shortage and labor troubles at Ohio mines. No let-up in demand for domestic coal.

Bituminous—Prices of coal and coke, as have those of food, clothing and the like, have come under fire in the campaign to reduce the high cost of living, but the trade is standing pat and bearing up well. The only means of bringing about a reduction will come Aug. 15, when freight rates on coal from West Virginia, Ohio and western Pennsylvania into Cleveland and other northern Ohio districts are reduced 5c. a ton. The larger steam-coal users are taking all the operators can supply. Danger of a break in prices is most remote, according to well-informed operators. With representatives of the United Mine Workers planning big wage and time demands, prices will advance before they recede appreciably, it is declared.

The shortage of cars was felt more keenly last week than at any time so far. Whether this situation will be overcome by the strike of iron ore dock workers at upper Great Lakes ports remains to be seen, although much help is expected from this source. Because of the strike many lake ore carriers are being tied up, and not only will coal shipments up the Great Lakes be automatically cut down, but also many cars in the iron ore trade at Lake Erie ports will be released. In any event many operators believe that with the lake strike having all the earmarks of a long drawn-out struggle, a normal car supply for the local trade will become available. Southern and eastern Ohio mines, as a rule, are not working much better than 55 to 60 per cent., 5 to 10 per cent. under the mark of several weeks ago.

Labor trouble at the Ohio mines has many operators aroused. I. W. W. agitation is rampant just now, engaged not so much with cutting production at this time as with prompting extravagant demands by the mine workers when wage scales are negotiated. This trouble, apparently, is more of future than present concern. Labor, however, generally is restive, and a decided letting-up in effort is noticeable.

Pretty good inroad is being made on the surplus piles of slack thrown up at the mines last winter. The piles still are sizable, but shipments the past few weeks have been about twice production. Two of the largest users of slack in the Cleveland territory now are badly crippled by labor trouble, and the next few weeks likely will see this demand somewhat lower. Industrial establishments not harried by labor troubles are approximating 100 per cent. operations.

Pocahontas and Anthracite—Retail dealers say domestic consumers of these grades are exhibiting an amazing capacity. Demand for both anthracite and Pocahontas seems not to be tapering off at all, while most dealers looked for a slack period from about the first of August till the first tinge of winter. Prices are firm, and receipts are barely sufficient to meet requirements, most dealers having quite a backlog.

Lake Trade—As fast as the larger iron-ore carriers reach Lake Erie ports they are being tied up or loaded with coal cargoes to hold until the dock strike at the head of the lakes is broken. Consequently, coal loading for this week may not fall much under 850,000 tons, which is the figure for the last few weeks; but next week will see a marked decrease. This will not be a great hardship, as coal just now is plentiful at the head of the lakes. According to figures from Duluth, receipts of bituminous coal there and at Superior in July were 1,327,000 tons, compared with 1,120,300 tons in July, 1918. Receipts of bituminous coal for the season to Aug. 1, at Duluth and Superior, were 4,481,500 tons against only 3,112,500 tons to Aug. 1, last year. A let-up of two weeks in the lake coal trade, allowing lower lake users the supplies they are seeking, will be welcomed by many operators.

Prices of coal per net ton delivered in Cleveland are:

Anthracite:	
Egg	$11.15@$11.25
Chestnut	11.65@ 11.75
Grate	11.45@ 11.55
Stove	11.55@ 11.65
Pocahontas:	
Forked	9.50
Lump	8.50@8.75
Mine-run	7.50
Domestic Bituminous:	
West Virginia splint	7.80@8.10
No. 8 Pittsburgh	6.30@6.65
Massillon lump	7.50@7.70
Steam Coal:	
No. 6 slack	4.35@4.55
No. 8 slack	4.90@5.10
Youghiogheny slack	4.95@5.25
No. 8 ¾-in.	5.60@5.75
No. 6 mine-run	4.70@4.80
No. 8 mine-run	5.10@5.20

DETROIT

Jobbers fear embargoes on coal shipments over various roads may seriously reduce Detroit's winter fuel supply.

Bituminous—Justification of often-reiterated warnings to Detroit buyers of bituminous coal to stock up early apparently is to be found in the action of the Chesapeake & Ohio and other roads placing an embargo on coal shipments, in the contingency created by labor difficulties. Detroit jobbers fear the embargo is likely to create a troublesome condition for some of the Detroit users of steam coal who have been postponing the accumulation of reserves, as a considerable proportion of the West Virginia coal reaching Detroit is handled over the Chesapeake & Ohio and connecting lines through the Toledo gateway.

Though a slight improvement has been noted by some of the jobbers in the number of inquiries received, the aggregate of business handled is still described as unsatisfactory and below the amount which it is said should be moving into the city at this season of the year, particularly in consideration of the restricted buying earlier in the season. Jobbers find that some of the consumers of steam coal are apparently still cherishing expectations that coal will be cheaper after a while,

though a study of the Government's figures on production would seem to refute this theory.

Quotations f.o.b. mines on a net-ton basis for Hocking domestic lump are reported firm at $2.75, while run-of-mine ranges from $2 to $2.20 and slack averages about $1.50 For Pittsburgh No. 8, three-quarter lump is quoted at about $2.50, with mine-run at $2 to $2.25 and slack at $1.75. Four-inch West Virginia lump ranges from $3.25 to $3.50; two-inch lump is $3, mine-run $2.25 to $2.50 and slack $1.85 to $1.90. Smokeless coal is almost unobtainable, though some mine-run is reported to have been offered at $2.75 to $3. Very little coal is to be found on tracks and sidings around Detroit, other than stock sent direct from producer to consumer.

Anthracite—Complaint is made by retailers that much delay is experienced in having orders for anthracite filled. The present conditions are construed to indicate that sufficient stock to meet all requirements will not be forthcoming. While most of the retail yards have some anthracite on hand, the supply would not last long with an active demand from customers.

COLUMBUS

The coal trade in Ohio has developed considerable strength in every department. There is a stronger domestic demand, which has the effect of strengthening prices. Steam business also shows some improvement. Car shortage is growing worse.

The principal feature of the Ohio coal trade is the better demand for domestic sizes which is reported from all localities. This is an encouraging feature, as that department has been rather slow for the past few months. Retailers are buying more liberally, as more householders are coming into the market. Domestic prices have advanced at the mines, with a corresponding advance to the consumer.

Under the influence of better buying, prices for Hocking lump are strong at $3 at the mines. Pocahontas lump is $5 and upward. West Virginia splints are all high, and the same is true of Kentucky grades. Retail prices are being advanced to about $6 for Hocking lump, Pomeroy lump to $6.25 and splints to about the same figure. Pocahontas is now retailing between $7.75 and $8.

The lake trade is rather quiet, although there is still a considerable tonnage moving to the Northwest. There is little congestion on the upper lake docks, as the interior movement has started. Vessels are still plentiful. It is believed that with the coming car shortage the lake trade will continue to the latter part of November, as there is a large tonnage yet to be moved to the upper lake ports.

Steam business is also improving to a small extent. Because of the larger production of lump, there is not so much mine-run on the market and prices are higher. Prices of $1.75 for mine-run have now been withdrawn, and practically none can be purchased for less than $2 and even higher. Nut, pea and slack are also showing a little strength, but these grades are still weak. The unusual weakness of screenings is difficult to explain. Railroads are using a larger tonnage than formerly, and some lines of manufacturing are increasing their fuel requisitions.

Production is restricted largely by car shortage. The scarcity of equipment is now affecting every field in the Buckeye State, with a corresponding decrease in output figures. In eastern Ohio, where the car shortage is most pronounced, it is estimated that the output during the past two weeks has been but 35 per cent. In the Hocking Valley, Pomeroy Bend and Cambridge fields production is about 50 per cent. or lower. There is little hope for an immediate improvement in the car-supply situation.

CINCINNATI

Coal car shortage and strike of railroad shopmen hurt coal shipments. Increased prices announced.

Two circumstances of vital importance to coal operators, dealers and consumers in the Cincinnati district occurred during the past week. The first of these was the increase in the price of all grades of coal, and the second the strike of the railroad shopmen, which caused the closing down of virtually every mine in the Kanawha, New River and Logan districts in West Virginia that is reached by the Chesapeake & Ohio R.R. Thousands of miners have been forced to idleness. The situation on other coal-carrying railroads is decidedly better, but there is a car shortage on all, owing to the tremendous number of cars being sent into the West to take care of the grain movement. This, along with the strike of the shopmen, makes the car shortage a serious one.

The much heralded and thoroughly advertised prediction that coal prices would not come down, and that if anything they would increase, came true in Cincinnati during the past week when prices were quoted 50c. a ton higher, wholesale at $6.50 @6.75 a ton for Youghiogheny and Fairmont lump. Smokeless lump and egg was up 50c. at $8@8.25 a ton. Anthracite was quoted at $12.50 a ton. The advance really occurred Aug. 1, but quotations were not posted until Aug. 5.

The increased prices had a tendency to stimulate those users of coal who have been inclined to think that prices must come down. They are now thoroughly convinced that there are to be no lower prices, and consequently the past week has seen a great volume of business booked by the dealers.

INDIANAPOLIS

Increase announced on all grades of coal. Labor and car shortage is reported.

An increase of about 25c. a ton for Indiana coal and from 50 to 75c. a ton for Pocahontas and anthracite has been quoted by Indianapolis coal dealers. Notice has been received by dealers from two operators in the Terre Haute field, the Coal Block Co. and Richards & Son, of price increases of 25c. a ton for Indiana mine-run and lump coal, and a similar increase in the steam grades. Indianapolis retailers increased the price of coal approximately 25c. a ton June 4, and the same reasons are assigned for the new increase. Mines have been able to operate only two or three days a week because of car shortage and because the domestic demand has been less than normal.

Because the steel mills and other users of screenings have been operating below capacity, the cost of producing lump coal has been increased, as there has been no market for screenings, it is said. With an increase in the domestic demand the operators are advancing the price to meet the high cost in production. In some fields a labor shortage is reported, due partly to the emigration of miners to Europe. A. B. Meyer & Co. have announced an increase in Indiana Linton lump No. 4 from $5.75 to $6 a ton and Indiana mine-run from $5 to $5.50 a ton. Pocahontas shoveled lump was increased from $8.75 to $9.50 a ton and Pocahontas mine-run from $7.50 to $8 a ton. There is a difference among dealers because of the uncertainty of the supply. A. B. Meyer & Co. also quoted an increase of 25c. on Kentucky lump coal.

LOUISVILLE

General coal market stronger, with domestic prices climbing out of sight and threatening to result in Federal control. Railroad strikes and embargoes blocking shipments in many sections.

The strike situation on the railroads has been the principal topic during the past week, as it has demoralized shipping. The Chesapeake & Ohio is refusing all freights. The Louisville & Nashville has placed numerous embargoes, and the Cincinnati gateway is generally barred to all shipments. Some shipments are moving through Louisville, but with embargoes to connecting lines at various points. Shipments to Atlanta and beyond are embargoed in some instances, and conditions have reached a point where it is a hard matter to find out just what shipments can be accepted and handled. The car shortage is steadily becoming worse, due to congestion at terminals and failure of empties to return promptly.

At the mines labor is not overlooking the railroad situation, and it is reported that miners are anything but satisfied with conditions.

Production in the eastern Kentucky fields is reported to be on a 50 to 60 per cent. basis, with western Kentucky working two and 2½ days per week. Under existing car shortage labor is equal to all demand.

Western Kentucky prices have advanced well on domestic coal during the past two weeks due to the high quotations on eastern Kentucky grades and the shortage. Steam coal is again draggy and hard to sell, but less spot coal on the market.

Eastern Kentucky block coal is rising fast, having jumped from around $3.50 to $4 a ton to prices ranging from $4 to $4.75, with most of it quoted at around $4.25. At that the operators are not accepting much new business as they cannot handle it with present car supplies. The high prices quoted on eastern Kentucky block resulted in a surge of retail buying to the West Virginia fields, but labor troubles on the Norfolk & Western, Chesapeake & Ohio, and other lines are resulting in little West Virginia coal coming through.

Principal quotations are:

	Eastern Kentucky	Western Kentucky
Block and egg	$4.00@$4.75	$2.40@$2.50
Run-of-mine	2.75@ 3 00	2.25@ 2.40
Nut and slack	2.00@ 2.90	1.35@ 1.50
Thin screenings	.....	1.00@ 1.25

Eastern Kentucky operators claim that block coal will probably hit $5 a ton by the end of the month. Western Kentucky operators report that lump will go back to $2.55. Some western Kentucky pea and slack has been quoted at 65 to 90 cents a ton, but long stocks have been reduced and about the lowest quotations on such coal are around $1 a ton.

Coke

CONNELLSVILLE

Surplus production, with some concessions on spot furnace coke. Negotiations by idle blast furnaces. Foundry coke firm.

Connellsville coke operators who blew in large numbers of ovens in June and the first week or two of July evidently anticipated their welcome. The theory was that there would be a much larger demand for coke late in the year, say in the last three or four months, and the rise in the spot market in June, from $4 or less to fully $4.25, seemed to suggest that the better market was already at hand. The holiday period passed without production being restricted to any extent by the celebrations, and since then there has at all times been a considerable quantity of furnace coke on track awaiting movement. While operators were disposed to hold their surplus at $4 and endeavor to apply it in time on contract shipments, there have been some divergences in the past few days, coke selling in small lots down to $3.80, which appears to be the outside price that furnaces would pay, since they are well supplied as to the current consumption by contract shipments, and would take extra coke only for stocking purposes. It is thought that the majority of furnaces already have some stocks.

There are dilettante negotiations for furnace coke for the balance of the year, on the part of furnaces contemplating getting into blast again, but the furnaces want to drive rather sharp bargains. The usual asking price for the balance of the year is $4.50, though $4.25 might possibly be done. Furnaces note that coke was sold on contract at a ratio of 6¼ to 1, against basic pig iron at valley furnaces, which makes $4.12 for coke when iron is at its present level of $25.75; and as there is no immediate prospect of pig iron advancing, the furnaces now negotiating do not desire to pay more than about that figure.

The market stands quotable as follows: Spot and prompt furnace, $3.80@4; contract, $4.25@4.50; spot and prompt foundry, $5@5.50; contract (largely nominal) $5@5.50, per net ton at ovens.

Buffalo—A little more movement of iron ore shows that the furnaces are becoming more active, but the increase is light. Coke is strong on the basis of $7.60 for 72-hour Connellsville foundry, $7.25 for 48-hour furnace and $7 for off grades. Domestic sizes bring $6.75 and breeze, $5.75, all per net ton, f.o.b. Buffalo.

Middle West

MILWAUKEE

August coal market dull and featureless. Receipts by lake slow up a little, but thus far exceed those of last year.

The August advances in anthracite, soft coal and coke failed to cause even a ripple of excitement in the coal market, and mid-summer dullness prevails. Deliveries would be some livelier, small dealers say, if the dockmen would stand for more liberal requisitions on their part of anthracite and Pocahontas. There are fairly good stocks of both on hand, but the accumulation is being conserved to protect future delivery obligations. Coke does not seem to be wanted at present, and the stock piles keep growing. Receipts by lake are slowing up some. Thus far since the opening of navigation 433,900 tons of anthracite and 1,715,324 tons of soft coal have been put over the docks, a gain of 141,184 tons of the former and 197,427 tons of the latter over the record of the same period in 1918.

ST. LOUIS

All Standard mines idle and troubles spreading into other sections of the state. Railroad strike almost completely ties up St. Louis movement of coal. Present supply limited on account of congested conditions. Steam trade to suffer most. War time prices prevailing.

The trouble that started the latter part of last week in the Standard field, when the miners refused to work on account of the operators deducting one day's pay as a fine, according to the agreement, because the miners laid off work on July 5 as a protest in the Mooney case, spread, and at the present time every mine in the Standard field is down excepting those around Sparta on the M. & O. and one or two in isolated places. Nearly every mine in the Mt. Olive district is also idle, and dissatisfaction is rampant. The trouble is not only confined to these districts, but is also in Perry County and in Franklin County, where some of the miners have already gone out on strike.

The trouble, apparently, is because of the failure of the Government to declare the war officially ended and in this manner give the miners a chance to get together with the operators under a new agreement. The general feeling throughout this section on the part of the public is that the miners are justified in their stand because they entered an agreement almost eighteen months ago to work on a certain scale until the war was over. The cost of living has increased in the meantime and there is no chance of their getting a new working scale.

For a long time there has been considerable dissatisfaction in the southern Illinois fields, and at a meeting this week at Belleville the miners openly asked for the resignation of the union officials, indicating that what was prophesied some time ago had come up, and that was that the men had got beyond the control of their leaders.

On the 4th instant screenings were down to 90c. in the Standard field and 2-in. lump to $1.75. At the close of the week screenings were better than $2, and lump was up to $3, with none available. When the trouble spread to the Carterville field of Williamson and Franklin County screenings were down at one time to about $1.25 on the Chicago market and $1.50 on the St. Louis market. On Aug. 6 these same screenings went up to $2.20, with nothing to offer.

The majority of the operators in all fields are for confining such sales as they are able to make to a reasonable price. The Carterville field is sticking close to its regular price, but in the Standard field operators are getting just as much as the traffic will bear.

The steam market is in a critical shape for the reason that everybody is short. If the troubles continue for another week many plants in St. Louis will be idle.

The domestic demand for Standard is light. Mt. Olive is not causing any worry, whereas Carterville is much in demand, with little available.

On account of the unusual conditions it is hard to indicate just what is going to happen, as circumstances are changed daily. The shopmen on practically every road in St. Louis are out. On some roads no freight trains are moving at all. The Terminal men are working, and that is the only thing that is keeping St. Louis on the map right now. The crews are working night and day, and every effort is being made to keep lines open, but it is only a matter of a day or two if the trouble continues until St. Louis will be completely tied up.

Conditions in the country are worse than in St. Louis, for no coal is being accepted for outside movement. This is going to work a hardship on the outside steam plants. The demand from the country is good, but it is out of the question to accept any orders. Railroads are refusing to place empty cars at the mines for commercial loading, and such empties as are being placed are being loaded with railroad coal. In the Carterville field a 50 per cent. car supply has prevailed the past week, and some mines on the Illinois Central work one day out of six on account of no cars.

There is no anthracite or smokeless coal coming in and no indication that anything like this will move this way until conditions become normal.

I. C. C. Decisions

No. 10268. Seaboard Byproduct Coke Company vs. Director General, Delaware, Lackawanna & Western Railroad Company, et al. Submitted May 27, 1919. Decided June 27, 1919. Combination rates assessed on certain shipments of bituminous coal en route from mines in the Pittsburgh and Connellsville districts to Elizabethport, N. J., for delivery by barge at Seaboard (Kearney), N. J., diverted in transit to all-rail routes over which there were no joint rates, found unreasonable to the extent that they exceeded $2.35 per long ton. Reparation awarded where settlement was made at a rate in excess of $2.35 per long ton.

No. 10234. Virginia Iron, Coal and Coke Co. et al, vs. Director General, Southern Railway Co. et al. Submitted May 14, 1919. Decided June 27, 1919.

1. Increased rates on iron ore to Middlesboro, Ky., from points in Tennessee, Georgia, North Carolina, and Virginia on the Southern Railway and the Rome & Northern and Louisville & Nashville railroads found justified.

2. Practice of stating rates on iron ore in terms of net tons instead of long tons not shown to be unreasonable or otherwise unlawful. Complaint dismissed.

General Statistics

ANTHRACITE SHIPMENTS FOR JUNE, 1919

The shipments of anthracite for the month of June, as reported to the Anthracite Bureau of Information, Philadelphia, amounted to 5,619,591 tons, as compared with 5,711,915 tons in the preceding month, and with 6,867,669 tons in the corresponding month of 1918. As was the case in May, the larger part of the decrease in June of this year as compared with last was due to the smaller output of steam sizes from the washeries, more than two-thirds of the decrease being in the steam sizes.

The shipments by companies were as follows:

	June, 1919	June, 1918	Coal Year, 1919-1920	Coal Year 1918-1919
P. & R. Ry.	1,084,635	1,345,079	3,284,946	3,935,469
L. V. R.R.	1,041,696	1,352,820	2,937,780	3,856,311
C. R.R. of N. J.	508,702	622,005	1,489,004	1,717,865
D. L. & W. R.R.	903,306	1,015,438	2,702,822	3,061,059
D. & H. Co.	661,991	773,691	1,932,697	2,371,234
Penna. R.R.	572,658	482,737	1,157,826	1,424,491
Erie R.R.	616,939	756,257	1,819,718	2,212,879
N. Y., O. & W. Ry.	167,327	186,948	479,586	549,670
L. & N. E. R.R.	262,337	332,694	751,842	994,320
Totals	5,619,591	6,867,669	16,556,221	20,123,298

COKE PRODUCTION IN 1918

The final figures on the production of coke in 1918, collected by the Geological Survey from producers, record an output of 56,478,372 net tons, of which 25,997,580 tons, or 46 per cent., were from byproduct ovens and 30,480,792 tons were from beehive ovens. Estimates for 1918 published on Jan. 4, 1919, differed from the final figures by three-tenths of 1 per cent.

Total production increased 1.6 per cent. over 1917; byproduct production increased 15.9 per cent.; beehive production decreased 8 per cent. There were 8904 byproduct ovens in operation in 1918, an increase of 1606 over 1917; and 61,317 beehive ovens active, a decrease of 7370 compared with 1917. (See table below.)

Of the beehive coke produced, 23,171,627 tons were sold as furnace coke at an average of $5.93 per ton, and 2,230,156 tons as foundry coke at an average of $7.53 per ton.

In all, 84 per cent. of the beehive coke was sold and 16 per cent. used by the producer. Byproduct coke is largely consumed by the producer—68 per cent. of the output in 1918, compared with 32 per cent. sold. More than 2,500,000 tons of byproduct coke were sold for domestic and other uses than furnace and foundry.

BEEHIVE AND BYPRODUCT COKE PRODUCED IN THE UNITED STATES IN 1917 AND 1918

Compiled by C. E. Lesher, United States Geological Survey, Department of the Interior

State	1917 Beehive Active Ovens	1917 Beehive Coke Produced, Net Tons	1917 Byproduct Active Ovens	1917 Byproduct Coke Produced, Net Tons	1917 Total Coke, Net Tons	1918 Beehive Active Ovens	1918 Beehive Coke Produced, Net Tons	1918 Byproduct Active Ovens	1918 Byproduct Coke Produced, Net Tons	1918 Total Coke, Net Tons
Alabama	5,493	2,151,828	831	2,740,761	4,892,589	5,570	1,717,721	807	2,634,451	4,352,172
Colorado	2,867	1,112,449	.....	.....	1,112,449	1,431	(a)	120	(a)	989,447
Georgia	151	39,589	.....	.....	39,589	101	22,048	.....	.....	22,048
Illinois	.....	.....	619	2,289,833	2,289,833	.....	.....	605	2,285,610	2,285,610
Indiana	.....	.....	861	3,540,718	3,540,718	.....	.....	945	3,898,215	3,898,215
Kentucky	801	331,532	108	531,539	863,071	798	301,036	108	517,749	818,785
Maryland	.....	.....	120	518,810	518,810	.....	.....	180	474,368	474,368
Massachusetts	.....	.....	317	595,113	595,113	.....	.....	400	556,397	556,397
Michigan	.....	.....	258	(a)	(a)	.....	.....	269	(a)	(a)
Minnesota	.....	.....	152	490,272	490,272	.....	.....	214	784,065	784,055
Missouri	.....	.....	56	(a)	(a)	.....	.....	56	(a)	(a)
New Jersey	.....	.....	260	423,361	423,361	.....	.....	260	682,148	682,148
New Mexico	1,134	577,679	.....	.....	577,679	1,053	597,072	.....	.....	597,072
New York	.....	.....	615	993,184	993,184	.....	.....	615	1,069,587	1,069,587
Ohio	198	147,826	1,009	3,546,476	3,694,302	198	(a)	1,610	(a)	5,365,243
Oklahoma	.....	.....	.....	.....	.....	304	(a)	.....	.....	(a)
Pennsylvania	44,534	23,816,420	1,629	4,095,605	27,912,025	37,730	22,136,664	2,189	4,586,981	26,723,645
Tennessee	1,266	376,080	12	35,246	411,326	1,101	302,637	24	124,469	427,106
Utah	726	(b)	.....	.....	(b)	819	(a)	.....	.....	(a)
Virginia	8,029	1,304,330	.....	.....	1,304,230	3,135	1,234,256	.....	.....	1,234,256
Washington	254	(c) 471,187	5	26,346	(c) 497,533	250	93,659	20	30,129	123,788
West Virginia	8,234	2,838,728	214	511,033	3,349,761	8,827	2,716,613	214	603,393	3,320,006
Wisconsin	.....	.....	232	(a)	(a)	.....	.....	268	(a)	(a)
Combined states	.....	.....	.....	2,100,983	2,100,983	.....	1,359,086	.....	7,750,018	2,754,414
Total	68,687	33,167,548	7,298	22,439,280	55,606,828	61,317	30,480,792	8,904	25,997,580	56,478,372

(a) Included in combined states. (b) Included with Washington. (c) Includes Utah.

CURRENT PRICES—MATERIALS & SUPPLIES

IRON AND STEEL

PIG IRON—Quotations compiled by the Matthew Addy Company as per Department of Commerce Committee Schedule.

	Current	One Month Ago
CINCINNATI		
No. 2 Southern	$29.80	$30.35
Northern Basic	27.55	27.55
Southern Ohio No. 2	28.55	28.25
NEW YORK, Tidewater delivery		
2X Virginia (silicon 2.25 to 2.75)	32.40	31.90
Southern No. 2 (silicon 2.25 to 2.75)	35.20	33.95
BIRMINGHAM		
No. 2 Foundry	28.00	25.25
PHILADELPHIA		
Eastern Pa.	30.65*	30.65
Virginia No. 2	32.10–34.10	30.85
Basic	30.90*	30.90
Grey Forge	29.90*	30.90
CHICAGO		
No. 2 Foundry Local	26.75	26.75
No. 2 Foundry Southern	28.00	32.00
PITTSBURGH, including freight charge from the Valley		
No. 2 Foundry Valley	28.15	28.15
Basic	27.15	27.15
Bessemer	29.35	29.35

*F. o. b. furnace. † Delivered.

STRUCTURAL MATERIAL—The following are the base prices, f.o.b. mill, Pittsburgh, together with the quotations per 100 lb. from warehouses at the places named:

	Mill Pittsburgh	New York Current	New York One Year Ago	St. Louis	Chicago
Beams, 3 to 15 in.	$2.45	$3.47	$4.24½	$3.54	$3.47
Channels, 3 to 15 in.	2.45	3.47	4.24½	3.54	3.47
Angles, 3 to 6 in., ¼ in. thick.	2.45	3.47	4.24½	3.54	3.47
Tees, 3 in. and larger	2.45	3.52	4.24½	3.54	3.47
Plates	2.66	3.67	4.49½	3.54	3.67

BAR IRON—Prices in cents per pound at cities named are as follows:

Pittsburgh	Cincinnati	St. Louis	Denver	Birmingham
2.75	3.25	3.44	4.30	3.50

NAILS—Prices per keg from warehouse in cities named:

	Mill Pittsburgh	St. Louis	Denver	Chicago	Birmingham	San Francisco	Dallas
Wire	$3.25	$3.90	$4.90	$3.90	$4.25	$5.00	$5.00
Cut	4.25	5.40	5.61	5.50	....	6.65	6.40

TRACK SUPPLIES—The following prices are base per 100 lb. f.o.b. Pittsburgh for carload lots, together with the warehouse prices at the places named:

	Pittsburgh	Chicago	St. Louis	San Francisco	Birmingham	Denver
Standard railroad spikes ⅝-in. and larger	$3.35	$4.27	$4.44	$5.65	$4.50	$5.05
Track bolts	4.35	5.17	Prem.	6.65	6.00	6.05
Standard section angle bars	3.00	4.22	Prem.	4.60	....	6.50

COLD DRAWN STEEL SHAFTING—From warehouse to consumers requiring fair-sized lots, the following discounts hold:

Cincinnati	Cleveland	Chicago	St. Louis	Denver	Birmingham
15%	List—5%	List—2%	+15%	+20%	+20%

HORSE AND MULE SHOES—Warehouse prices per 100 lb. in cities named:

	Mill Pittsburgh	Cincinnati	Chicago	St. Louis	Denver	Birmingham
Straight	$5.75	$7.50	$6.50	$7.25	$8.15	$7.00
Assorted	6.40	7.50	6.50-7.00	6.40	8.40	7.25

Cincinnati—Horseshoe nails sell for $4.50 to $5 per 25-lb. box.

CAST-IRON PIPE—The following are prices per net ton for carload lots:

	New York Current	New York One Month Ago	New York One Year Ago	Chicago	St. Louis	San Francisco	Dallas
4 in.	$55.30	$53.00	$64.75	$56.80	$50.00	$77.55	$65.00
6 in. and over	52.30	50.00	61.75	53.80	47.00	74.55	62.00

Gas pipe and 16-ft. lengths are $1 per ton extra.

STEEL RAILS—The following quotations are per ton f.o.b. Pittsburgh and Chicago for carload or larger lots. For less than carload lots 5c. per 100 lb. is charged extra:

	Pittsburgh Current	Pittsburgh One Year Ago	Chicago Current	Chicago One Year Ago
Standard Bessemer rails	$45.00	$55.00	$45.00	$65.00
Standard openhearth rails	47.00	57.00	47.00	67.00
Light rails, 8 to 10 lb.	2.58½*	3.13*	2.83½*	3.13½*
Light rails, 12 to 14 lb.	2.54*	3.09*	2.79*	3.09*
Light rails, 25 to 45 lb.	2.45*	3.00*	2.70*	3.00*

*Per 100 lb.

OLD MATERIAL—The prices following are per gross ton paid to dealers and producers in New York. In Chicago and St. Louis the quotations are per net ton and cover delivery at the buyer's works, including freight transfer charges:

	New York	Chicago	St. Louis
No. 1 railroad wrought	$22.00	$17.50	$19.50
Stove plate	17.00	18.25	21.50
No. 1 machinery cast	25.00	22.00	23.50
Machine shop turnings	10.00	8.75	11.50
Cast borings	10.00	11.00	11.50
Railroad malleable cast	15.00	18.50	18.50

COAL BIT STEEL—Warehouse price per pound is as follows:

New York	Cincinnati	Birmingham	St. Louis	Denver
$0.12	$0.16½	$0.18	$0.13	$0.18½

DRILL STEEL—Warehouse price per pound:

	New York	St. Louis	Birmingham
Solid	14c.	13c.	15c.
Hollow	18c.	....	....

PIPE—The following discounts are for carload lots f.o.b. Pittsburgh; basing card of Jan. 1, 1919 for steel pipe and for iron pipe:

BUTT WELD

Inches	Steel Black	Steel Galvanized	Inches	Iron Black	Iron Galvanized
⅛, ¼ and ⅜	50½%	24%	½ to 1½	39½%	23½%
½	54½%	40%			
¾ to 3	57½%	44%			

LAP WELD

2	50½%	35%	2	32½%	18½%
2½ to 6	53½%	41%	2½ to 4	34½%	21½%

BUTT WELD, EXTRA STRONG PLAIN ENDS

⅛, ¼ and ⅜	46½%	29%	½ to 1½	39½%	24½%
½	51½%	39%			
¾ to 1½	55½%	43%			

LAP WELD, EXTRA STRONG PLAIN ENDS

2	48½%	37%	2	33½%	20½%
2½ to 4	51½%	40%	2½ to 4	35½%	23½%
4½ to 6	50½%	39%	4½ to 6	34½%	22½%

Stocks discounts in cities named are as follows:

	New York Black	New York Galvanized	Cleveland Black	Cleveland Galvanized	Chicago Black	Chicago Galvanized
⅜ to 3 in. steel butt welded	47%	31%	43½%	34½%	57½%	44%
3½ to 3 in. steel lap welded	42%	27%	45½%	30½%	53½%	41%

Malleable fittings. Class B and C, from New York stock sell at list + 12½%. Cast iron, standard sizes, 10% off.

WIRE ROPE—Discounts from list price on regular grades of bright and galvanized are as follows:

	New York and St. Louis
Galvanized iron rigging	+12½%
Galvanized cast steel rigging	7½%
Bright plain rigging	35%
Bright cast steel	22½%
Bright iron and iron tiller	5%

STEEL SHEETS—The following are the prices in cents per pound from jobbers' warehouse at the cities named:

	Pittsburgh, Mill in Carloads	New York Current	New York One Month Ago	New York One Year Ago	Cleveland Current	Chicago Current
*No. 28 black	4.35	5.50	5.62	6.495	5.27	5.37
*No. 26 black	4.25	5.40	5.52	6.395	5.17	5.27
*Nos. 22 and 24 black	4.20	5.35	5.47	6.345	5.12	5.22
Nos. 18 and 20 black	4.15	5.30	5.42	6.295	5.07	5.17
No. 16 blue annealed	3.75	4.77	4.77	5.695	4.67	4.77
No. 14 blue annealed	3.65	4.67	4.67	5.595	4.57	4.67
No. 10 blue annealed	3.55	4.57	4.57	5.495	4.47	4.57
*No. 28 galvanized	5.70	7.20	7.42	7.745	6.62	6.97
*No. 26 galvanized	5.40	6.90	7.12	7.445	6.32	6.67
No. 24 galvanized	5.25	6.75	6.97	7.295	6.17	6.52

* For painted corrugated sheets add 30c. per 100 lb. for 25 to 28 gages; 25c. for 19 to 24 gages; for galvanized corrugated sheets add 15c., all gages.

SHOP SUPPLIES

NUTS—From warehouse at the places named, on fair size orders, the following amount is deducted from list:

	New York Current	Cleveland Current	Cleveland One Year Ago	Chicago Current	Chicago One Year Ago	St. Louis Current
Hot pressed square	$1.50	$2.25	$1.40	$2.00	$2.00	$2.25
Hot pressed hexagon	1.50	2.25	1.20	2.00	2.00	2.25
Cold punched square	1.50	2.25	.75	1.30	1.30	2.25
Cold punched hexagon	1.50	2.25	.75	1.30	1.30	2.25

Semi-finished nuts sell at the following discounts from list price:

	Current	One Year Ago
New York	50—10%	40%
Chicago	50%	50%
Cleveland	60–10–10%	60%
St. Louis	45%	....

MACHINE BOLTS—Warehouse discounts in the following cities:

	New York	Cleveland	Chicago	St. Louis
½ by 4 in. and smaller	50%	50%	50–10%	50–10%
Larger and longer up to 1 in. by 30 in.	40%	40%	40–10%	40–10%

WASHERS—From warehouses at the places named the following amount is deducted from list price:

For wrought-iron washers:
New York.....$1.25 Cleveland.....$3.75 Chicago.....$2.25

For cast-iron washers the base price per 100 lb. is as follows:
New York.....$6.00 Cleveland.....$3.75 Chicago.....$4.00

RIVETS—The following quotations are allowed for fair sized orders from warehouse:

	New York	Cleveland	Chicago
Steel ⅞ and smaller	50–10%	60%	45%
Tinned	50–10%	60%	40%

Boiler, ¾, ⅞, 1 in. diameter by 2 in. to 5 in. sell as follows per 100 lb.:
New York..$4.72 base Cleveland..$4.00 Chicago..$4.87 Pittsburgh..$4.65

Structural, same sizes:
New York..$4.82 Cleveland..$4.10 Chicago..$4.97 Pittsburgh..$4.75

CONSTRUCTION MATERIALS

LINSEED OIL—These prices are per gallon:

	New York Current	New York One Year Ago	Cleveland Current	Cleveland One Year Ago	Chicago Current	Chicago One Year Ago
Raw in barrel	$2.15	$1.86	$2.15	$2.00	$2.48	$1.97
5-gal. cans	2.28	1.96	2.40	2.15	2.68	2.17

WHITE AND RED LEAD—Base price.

	Red Current Dry	Red Current In Oil	Red 1 Year Ago Dry	Red 1 Year Ago In Oil	White Current Dry and In Oil	White 1 Year Ago Dry and In Oil
100-lb. keg	13.00	14.50	14.00	14.50	13.00	14.00
25 and 50-lb. kegs	13.25	14.75	14.25	12.75	13.25	14.25
12½-lb. keg	13.50	15.00	14.50	15.00	13.50	14.50
5-lb. cans	15.00	16.50	.....	.....	15.00	16.00
1-lb. cans	16.00	17.50	.....	.....	16.00	17.00

500 lb. lots less 10% discount. 2000 lb. lots less 10–2½% discount.

COMMON BRICK—The prices per 1000 in cargo or carload lots are as follows:

Chicago	$12.00	Birmingham	$15.00
St. Louis, salmon	10.00	Denver (hard red)	13.00
Cincinnati	17.00		

PREPARED ROOFINGS—Standard grade rubbered surface, complete with nails and cement, costs per square as follows in New York, St. Louis, Chicago and San Francisco.

	1-Ply C.l.	1-Ply L.c.l.	2-Ply C.l.	2-Ply L.c.l.	3-Ply C.l.	3-Ply L.c.l.
No. 1 grade	$1.50	$1.75	$1.90	$2.15	$2.30	$2.55
No. 2 grade	1.35	1.60	1.70	1.95	2.05	2.30

Asbestos asphalt saturated felt (14 lb. per square) costs $5.00 per 100 lb.

Slate-surfaced roofing (red and green) in rolls of 108 sq.ft. costs $2.25 per roll in carload lots and $2.50 for smaller quantities.

Shingles, red and green slate finish cost $6.00 per square in carloads, $6.25 in smaller quantities, in Philadelphia.

ROOFING MATERIAL—Prices per ton f. o. b. New York and Chicago:

	Carload Lots N. Y.	Carload Lots Chicago	Less Than Carload Lots N. Y.	Less Than Carload Lots Chicago
Tar felt (14 lb. per square of 100 sq.ft.)	$70.00	$70.00	$71.00	$71.00
Tar pitch (in 400-lb. bbl.)	21.00	18.00	22.00	19.00
Asphalt pitch (in barrels)	34.00	34.00	37.50	37.50
Asphalt felt	68.00	68.00	72.50	72.50

HOLLOW TILE—Price per block in carload lots for hollow building tile:

	4x12x12	8x12x12	12x12x12
St. Paul	$0.065	$0.135	$0.185
St. Louis	.08	.15	.....
Seattle	.09	.175	.30
Los Angeles*	.082	.154	.236
New Orleans	.165	.22	.325
Pittsburgh	.065	.115	.....
Chicago	.08	.144	.....
Denver	.125	.18	.25
Cincinnati	.0645	.146	.1777

*F. o. b. factory, 4, 8 and 10 inch.

LUMBER—Price of pine per M in carload lots:

	1-In. Rough 10 In. x 16 Ft.	2-In. T. and G. 10 In. x 16 Ft.	8 x 8 In. x 20 Ft.
St. Louis	$30@51	$35.00	$33.00
Birmingham	39.00	33.00	31.00
Denver	43.25	35.00	43.00
Cincinnati	43.50	41.50	42.50

EXPLOSIVES—Price per pound of dynamite in small lots and price per 25-lb. keg for black powder:

	Low Freezing 20%	Gelatin 40%	Gelatin 60%	Gelatin 80%	Black Powder
New York	.....	$0.27½	$0.30	.....	$2.40
Boston	$0.22½	.24½	.26½	$0.31	2.20
Kansas City	.19	.23½	.26½	.30	2.25
New Orleans	.22½ (50%)	.23½	.24½	.30½	.....
Seattle	.14½	.18½	.21	.31½	1.90
Chicago	.18½	.21½	.25½	29½	2.15
St. Paul	.19	.23½	.26½	.....	2.45
St. Louis	.19	.23½	.25½	.30	2.40
Denver	.17½	.22	.24½	.28½	2.25
Dallas	.189	.225	.288	.342	2.75
Los Angeles	.189	.232	.257	.....	2.55

MISCELLANEOUS

GREASES—Prices are as follows in the following cities in cents per pound for barrel lots:

	Cincinnati	St. Louis	Birmingham	Denver
Cup	7	7	8½	14½
Fiber or sponge	8	13	8½	18
Transmission	7	13	8½	17
Axle	4½	4½	4½	5½
Gear	4½	7½	8½	8
Car journal	22 (gal.)	49	8½	8

BABBITT METAL—Warehouse prices in cents per pound:

	New York Current	New York One Year Ago	Cleveland Current	Cleveland One Year Ago	Chicago Current	Chicago One Year Ago
Best grade	90.00	125.00	80.00	108.00	75.00	100.00
Commercial	50.00	70.00	18.50	23.00	15.00	24.00

HOSE—Following are prices of various classes of hose:

Fire
50-Ft. Lengths
Underwriters' 2½-in. 70c. per ft.
Common, 2½-in. 40%

Air

First Grade	Second Grade	Third Grade
¾-in. per ft. $0.50	$0.35	$0.25

Steam—Discounts from list
First grade..... 30% Second grade..... 40% Third grade..... 40-10%

LEATHER BELTING—Present discounts from list in cities named:

	Medium Grade	Heavy Grade
St. Louis	45%	50%
Denver	30%	25%
Birmingham	35%	35%
Chicago	45%	35%
Cincinnati	30-5-2½%	40-2½%

RAWHIDE LACING—20% for cut; 45c. per sq.ft. for ordinary.

PACKING—Prices per pound:

Rubber and duck for low-pressure steam	$0.90
Asbestos for high-pressure steam	1.60
Duck and rubber for piston packing	1.00
Flax, regular	1.20
Flax, waterproofed	1.60
Compressed asbestos sheet	1.00
Wire insertion asbestos sheet	1.20
Rubber sheet	.60
Rubber sheet, wire insertion	.80
Rubber sheet, duck insertion	.50
Rubber sheet, cloth insertion	.30
Asbestos packing, twisted or braided, and graphited, for valve stems and stuffing boxes	1.20
Asbestos wick, ½- and 1-lb. balls	.85

MANILA ROPE—For rope smaller than ⅜-in. the price is ½ to 2c. extra: while for quantities amounting to less than 600 ft. there is an extra charge of 1c. The number of feet per pound for the various sizes is as follows: ¼-in., 8 ft.; ⅜-in., 6; ½-in., 4½; 1 in., 3½; 1½-in., 2 ft. 10 in.; 1½-in., 2 ft. 4 in. Following is price per pound for ⅜-in. and larger, in 1200-ft. coils:

Boston	$0.25	Atlanta	$0.29½
New York	.27	Denver	.27½
St. Louis	.26½	Kansas City	.28½
Chicago	.26½	New Orleans	.27½
St. Paul	.28	Seattle	.27½
San Francisco	.26	Los Angeles	.26

PIPE AND BOILER COVERING—Below are discounts and part of standard lists:

PIPE COVERING Pipe Size	Standard List Per Lin.Ft.	BLOCKS AND SHEETS Thickness	Price per Sq.Ft.
1-in.	$0.27	½-in.	$0.27
2-in.	.36	1 -in.	.30
3-in.	.45	1½-in.	.45
4-in.	.60	2 -in.	.60
6-in.	.80	2½-in.	.75
8-in.	1.10	3 -in.	.90
10-in.	1.30	3½-in.	1.05

85% magnesia high pressure ..... List

For low-pressure heating and return lines..... 4-ply.... 58% off; 3-ply.... 60% off; 2-ply.... 62% off

WIRING SUPPLIES—New York prices for tape and solder are as follows:

Friction tape, ¾-lb. rolls	48c. per lb.
Rubber tape, ¼-lb. rolls	60c. per lb.
Wire solder, 50-lb. spools	46c. per lb.
Soldering paste, 2-oz. cans	$1.20 per doz.

COPPER WIRE—Prices per 1000 ft. for rubber-covered wire in following cities:

	Denver Single Braid	Denver Double Braid	Denver Duplex	St. Louis Single Braid	St. Louis Double Braid	St. Louis Duplex	Birmingham Single Braid	Birmingham Double Braid	Birmingham Duplex
No. 14	$12.00	$15.50	$33.00	$11.00	$20.00	$31.50	$9.92	$9.92	$41.66
10	19.95	26.45	52.95	25.40	29.00	59.00	29.99	29.99	56.26
8	28.05	35.33	70.95	35.45	35.00	72.50	40.89	40.89	.....
6	44.35	47.85	.....	.....	61.00	120.00	82.13	82.13	.....
4	63.65	68.25	.....	.....	86.00	.....	112.48	112.48	.....
2	95.35	100.85	.....	.....	130.00	.....	158.76	158.76	.....
1	124.40	131.45	.....	.....	176.00	.....	213.34	213.34	.....
0	156.00	156.00	.....	.....	222.00	.....	251.50	251.50	.....
00	.....	.....	.....	.....	270.00	.....	302.78	302.78	.....
000	.....	.....	.....	.....	330.00	.....	366.00	366.00	.....
0000	.....	.....	.....	.....	400.00	.....	439.74	439.74	.....

Cincinnati is using a 20-cent base, with 55 to 58% discount.

FREIGHT RATES—On finished steel products in the Pittsburgh district including plates, structural shapes, merchant steel, bars, pipe fittings, plain and galvanized wire nails, rivets, spikes, bolts, flat sheets (except planished), chains, etc. the following freight rates per 1000 lb. are effective:

Boston	$0.30	New Orleans	$0.38½
Buffalo	.17	New York	.27
Chicago	.27	Philadelphia	.24½
Cincinnati	.23	St. Louis	24
Cleveland	.17	St. Paul	.49½
Denver	.99	Pacific Coast (all rail)	1.25*
Kansas City	.59		

Note—Add 3% transportation tax. Minimum carload, 80,000 lb.